LORD HALL LIBRARY

The OIL AND GAS JOURNAL

JAN 31 1951

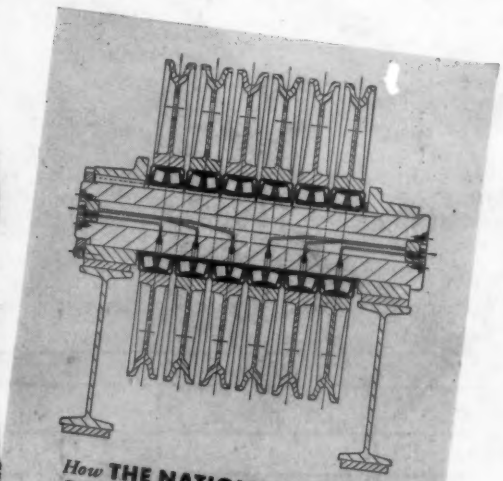
Crown block with TIMKEN® bearings takes king-sized load

THE 360-ton rating of the Ideal crown block pictured on this derrick makes it one of the larger-capacity blocks used in the oil industry. Built by The National Supply Company, the block's six sheaves are all mounted on Timken® tapered roller bearings to insure long trouble-free service, minimum maintenance and lubrication—even under excessive loads. The Ideal traveling block pictured in this derrick is also Timken bearing equipped.

Timken tapered roller bearings take any combination of radial and thrust loads eliminating the necessity of using additional thrust bearings or thrust washers to separate the sheaves. Because of their true rolling motion Timken bearings virtually eliminate friction with the result that slippage between wire line and sheaves is negligible—wire line wear is kept to a minimum.

Lubrication and maintenance time are reduced because Timken bearings permit tighter closures which retain lubricant. And Timken bearings normally last the life of the crown block because they are (1) engineered for the job, (2) made of Timken fine alloy steel, and (3) precision manufactured.

It will pay you to make sure Timken bearings are used in the drilling equipment you buy or build. Look for the trade-mark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable address: "TIMROSCO".



How **THE NATIONAL SUPPLY COMPANY** *uses Timken bearings on the sheaves of its 360-ton crown block to insure long life, maintenance-free operation.*

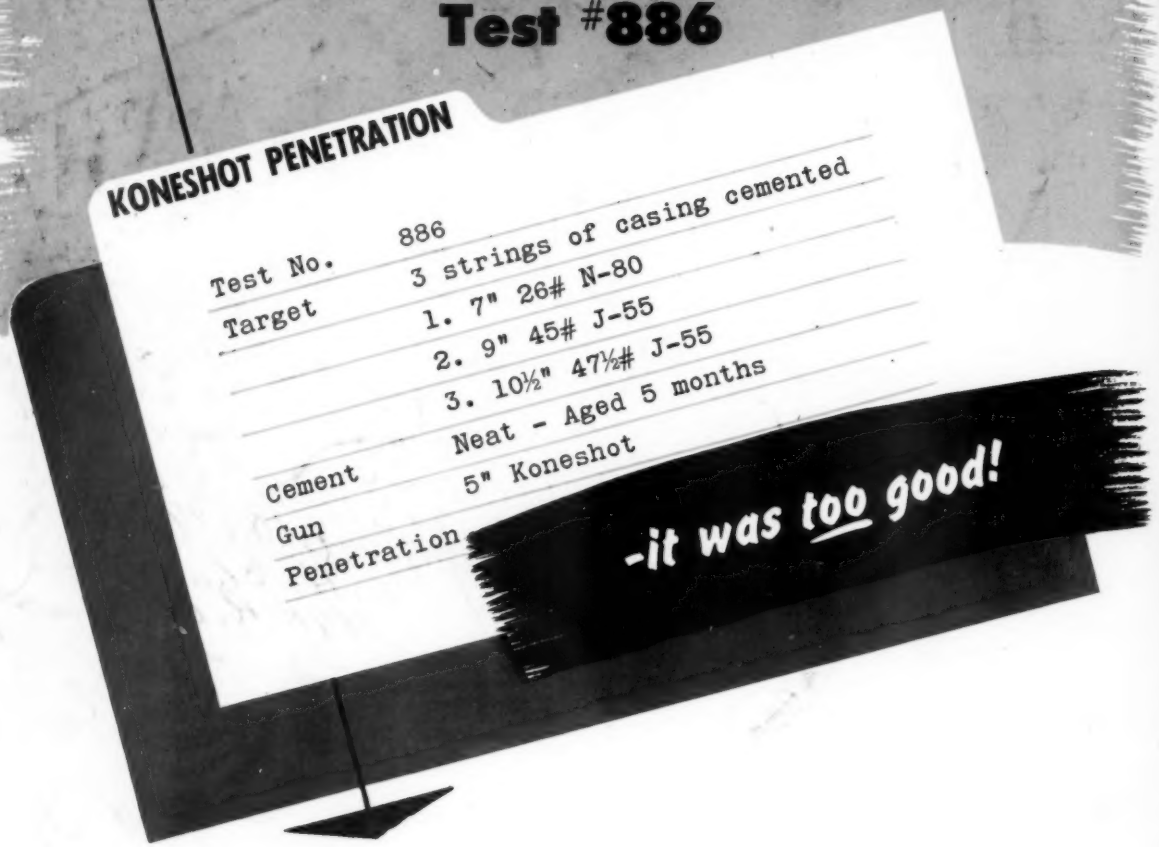
TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ◫ AND THRUST →◫← LOADS OR ANY COMBINATION →✳←

We Seldom Mention Test #886



It seems to us that it's better to tell you the *average* penetration . . . the results you can depend on . . . rather than quote the exception which, perhaps, you *might* get. That's why all the Lane-Wells tests on KONESHOT penetration were made under conditions which, as nearly as possible, duplicated actual operating conditions. And these are, briefly, the results:

AVERAGE PENETRATION			
	1 String	2 String	3 String
3⅛" gun	5¾"	5"	3½"
4" gun	7⅜"	7"	5"
5" gun	9"	7⅜"	7¼"

These are the figures that count—the actual penetration through casing and cement into the formation which you can depend on getting with KONESHOT, not once in a while, but *always!*

ASK YOUR LANE-WELLS KONESHOT PERFORATING **LANE-WELLS MAN!**

AK-4

General Offices, Export Office and Plant • 5610 So. Soto St. Los Angeles 58, California

Los Angeles • Houston • Oklahoma City
Lane-Wells Canadian Co. in Canada
Petro-Tech Service Co. in Venezuela

They Say—

Two Major Problems

"The petroleum industry will be confronted with two major problems in 1951—the unsettled international situation and the threat of further governmental interference which is likely to occur as a result of the international tension. The attempts toward industry regulation could hamper the very aims of the Government to establish an adequate supply of petroleum products for civilian and defense needs.

"It would be particularly unfortunate if under the guise of national emergency and the need for additional tax revenues we should witness renewed attacks on some of the existing incentives which have been instrumental in developing this country's crude-oil reserves and production, such as the provisions of the statutory depletion tax laws.

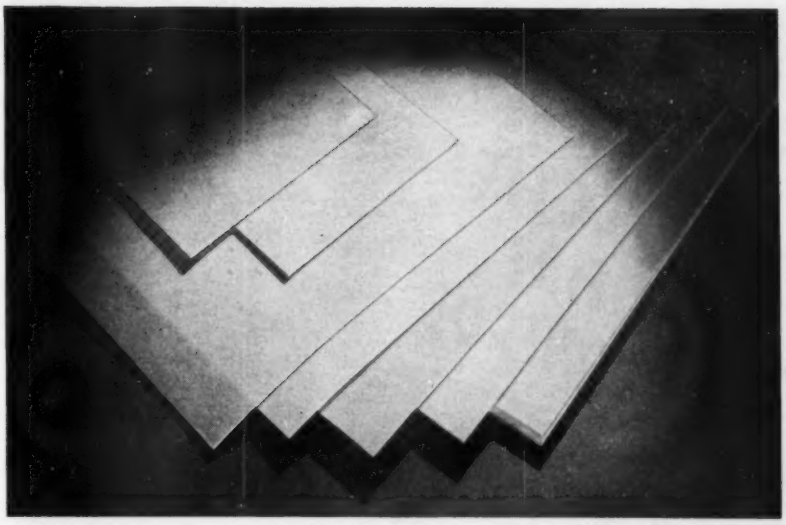
"As a solution to these problems, I can propose only that the petroleum industry continue to expand its productive capacity so as to meet sudden defense needs and that the case for free enterprise and retention of the incentives necessary for the industry to do the job be presented to the public and to the Government at every opportunity."

L. F. McCollum, president, Continenetal Oil Co., Houston.

Tidelands Settlement

". . . Texas oil men who have leases in the Gulf of Mexico believe this (plan for settlement of the tidelands controversy in which states would get 37½ per cent of all royalties from submerged lands, the Government to hold 52½ per cent of revenues in suspense, and the remaining 10 per cent of revenues going into federal treasury for benefit of all states) is actually better for the state than if it had unquestioned ownership of the oil under its marginal seas and would receive 100 per cent of the lease revenues therefrom.

"For this reason: Texas claims title to its offshore lands only 10½ miles (3 leagues) out; the federal Government's ownership beyond that line is unquestioned. But most of the oil development thus far has been farther out, and it can be extended possibly 50 or 60 miles to seaward. Oil men think that prospects for future development lie mostly out beyond the 10½-mile belt, and that therefore 37½ per cent of the revenues from an unlimited area would amount to more than 100 per cent of the revenues from within the 10½-mile margin, which is all that Texas would



TEFLON SHEET

Standard Sizes: 36"x36"—30"x30"—24"x24"

Thicknesses from 1/16" to 1 1/2"

Chemically-inert Teflon can't be attacked by, can't contaminate *any* process material. Teflon is tough, extremely antihesive, and serviceable from −150° F. to 550° F. It has outstanding electrical properties, zero water absorption, and is unaffected by outdoor weathering. Teflon is the perfect answer to countless product and equipment problems throughout the process, chemical, and electrical industries.

Teflon sheet stock is easily cut or machined into whatever parts you need, so whether you're ready for quantity production or merely wish to evaluate, let us know your requirements.

Also available, Teflon cylinders, rods, tubing, and bars, as well as all types of special molded or machined parts. We are the country's leading manufacturer of Teflon products.

Teflon Products Division

UNITED STATES GASKET CO.

677 N. 10th Street • CAMDEN, NEW JERSEY

Typical Properties of "Teflon"

Tensile Strength @ 77 F	1500 to 2500 psi.	Specific Heat	0.25 Btu./lb./deg. F
Elongation @ 77 F	100 to 200%	Heat Distortion Temperature for 66 psi.	270 F
Flexural Strength @ 77 F	Did not break (D790-44T)	Surface Arc-Resistance	Does not track even after 1200 seconds of exposure ASTM D 495-42
Stiffness @ 77 F	60,000 psi.	Volume Resistivity	10^{15} ohm-cm.
Izod Impact Strength @ 70 F 77 F 170 F	2.0 ft.-lb./in. 4.0 ft.-lb./in. 6.0 ft.-lb./in.	Surface Resistivity @ 100% Rel. Hum.	3.6×10^6 megohms
Durometer Hardness	55 to 70	Dielectric Constant, 60 to 10^8 Cycles	2.0-2.05
Compressive Stress @ 0.1% Deformation	1700 psi.	Power Factor, 60 to 10^8 Cycles	0.0005
Deformation under Load @ 122 F, 1200 psi., 85 hr.	4 to 8%	Water Absorption	0.0%
Coefficient of Linear Thermal Expansion from 77 to 140 F	5.5×10^{-5} per deg. F	Flammability	Nonflammable
Thermal Conductivity	1.7 Btu./hr./sq. ft./deg. F in.	Resistance to Weathering	Excellent
		Specific Gravity	2.1 to 2.3

FASTER..
..MORE
EFFECTIVE
FIRE
CONTROL
WITH THE
ANSUL
Stream
Pattern
PATENT
PENDING
..plus
BETTER
HEAT-SHIELD
PROTECTION
Exclusive Features
• Water-tight construction.
• Provides a modified cone-shaped stream pattern without hole in the center of the stream.
• Each nozzle gas pressure tested after assembly.
• Special spring loaded packing to insure lasting water-tightness.
• Designed for use by inexperienced operators.
• Low velocity, more effective stream of dry chemical.
Why Advertise the Nozzle! . . . .
. . . . because the nozzle on your ANSUL Dry Chemical Fire Extinguisher is water-tight . . . it won't become inoperative due to corrosion or caking of dry chemical within the working parts . . . the most inexperienced man in your plant can use the ANSUL extinguisher effectively . . . and only Ansul has a nozzle to meet all of these requirements!
If your hazards require special long range straight stream nozzles, you can get Ansul Extinguishers equipped with these nozzles at no extra cost. With Ansul Dry Chemical Fire Extinguishing Equipment you have not only the best fire protection but also a choice of models and designs to meet your requirements.
Send for File No. 655. You will receive our latest catalog, a Periodic Inspection Record Chart, "Fundamentals of Fire Extinguishment" and information about Ansul Dry Chemical Piped Systems for automatic protection.
ANSUL
CHEMICAL COMPANY
FIRE EXTINGUISHER DIVISION
MARINETTE • WISCONSIN
DISTRIBUTORS
IN ALL PRINCIPAL CITIES IN THE U.S.A., CANADA AND OTHER COUNTRIES
"PLUS-FIFTY"
DRY CHEMICAL
IS MORE DEPENDABLE
ALL-WAYS!
ANSUL
THIS TRADE MARK ASSURES YOU OF QUALITY PRODUCTS

expect if she had unchallenged ownership of her tidelands.

"So the proposed settlement seems a pretty good deal for Texas, considering the fact that under the Supreme Court decisions the federal Government could crack down and take ALL the revenues. Some state authorities still cling to the forlorn hope of quit-claim legislation, which would confirm the state's ownership of tidelands and nullify the Supreme Court decision. But realistic advocates concede it no chance to survive the promised presidential veto even if it were passed.

"It is understood that the proposed compromise is agreeable to tidelands state officials, with one exception: Texas' Atty. Gen. Price Daniel, and possibly some other last-ditch contenders for all or nothing, insist on the states' continuing to handle the leasing of the submerged lands; whereas the federal authorities claim that right, under the court's holding that the federal Government is the owner.

"Oil men who have offshore leases are willing for the federal Government to do the leasing. And after all, they have more immediately at stake than anyone else, having already invested about a quarter of a billion dollars in the development. It would be a pity if we allowed that objection to block a settlement, and thus perhaps lose the half-loaf.

"We believe the Supreme Court ruled wrongly, in disregard of the plain facts, which Mr. Daniel clearly showed the court. He has made a heroic fight for the tidelands, and all Texas admires him for it. But the court has ruled, and affirmed its ruling. It is done. Now we should take the best we can get out of it. . ."

Editorial in the Houston Post.

CALENDAR

1951

January

Southwestern Legal Foundation, second annual institute on oil and gas law and taxation, Southwestern Legal Center, Dallas, January 18-20.

L.P.G. Engine Fuel School, Kansas State College, Manhattan, Kans., January 21-23.

Compressed Gas Association, annual meeting, Waldorf-Astoria Hotel, New York City, January 22-23.

American Institute of Electrical Engineers, winter general meeting, Hotel Statler, New York, January 22-26.

Northwest Petrcleum Association, annual convention, Nicollet Hotel, Minneapolis, January 25-26.

Southern Gas Association, employe-relations section and accident-prevention round tables, Mobile, Ala., January 26.

Instrument Society of America, New York section, Hotel New Yorker, New York City January 26-27.

February

American Society for Testing Materials, Committee D-2 on Petroleum Products and Lubricants, Shoreham Hotel, Washington, D. C., February 4-9.

New York Oil Heating Association, Inc., Hotel Statler, New York, February 5.

Missouri Petroleum Association, annual

convention and trade exhibit, President Hotel, Kansas City, Mo., February 5-7.

American Institute of Electrical Engineers, Tulsa Section, meeting on explosion-proof electrical equipment, Michaelis Cafeteria, February 8.

American Geophysical Union, twenty-sixth regional meeting, Fresno State College, Fresno, Calif., February 9-10.

American Institute of Mining and Metallurgical Engineers, annual meeting, Jefferson and Statler hotels, St. Louis, February 19-22.

Kentucky Petroleum Marketers Association, annual meeting and trade show, Brown Hotel, Louisville, February 20-21.

Kansas-Oklahoma Water Flood Operators, monthly meeting, Booth Hotel, Independence, Kans., February 21.

National Association of Corrosion Engineers, Tulsa Section, Short Course on Practical Control of Pipe-Line Corrosion, Mayo Hotel, February 21-23.

Iowa Independent Oil Jobbers' Association, Inc., annual convention, Hotel Fort Des Moines, Des Moines, February 21-22

Wisconsin Petroleum Association, annual convention and equipment show, Milwaukee Auditorium, Milwaukee, February 27-28

March

American Association of Petroleum Geologists, Rocky Mountain Section, Shirley Savoy Hotel, Denver, March 1-2.

New York Oil Heating Association, Inc., Hotel Statler, New York, March 5.

American Society for Testing Materials spring meeting and committee week, Cincinnati, March 5-9.

American Petroleum Institute, division of production, southwestern district meeting Hotel Beaumont, Beaumont, Tex., March 7-9.

Indiana Independent Petroleum Association, spring convention and refiners and suppliers exhibit, Hotel Severin, Indianapolis, March 8-9.

Texas Oil Jobbers Association, Inc., spring convention and refiners and suppliers exhibit, Shamrock Hotel, Houston, March 9-10.

Mid-West Gas Association, Hotel Fontenelle, Omaha, March 12-14.

First South American Oil Congress, Montevideo, Uruguay, March 12-16.

Illinois Petroleum Marketers Association annual convention, Sherman Hotel, Chicago March 13-15.

National Association of Corrosion Engineers, annual conference and exhibition Statler Hotel, New York City, March 13-16

Gas Appliance Manufacturers Association annual meeting, The Homestead, Hot Springs, Va., March 19-21.

Ohio Petroleum Marketers Association annual convention and marketing exposition, Deshler-Wallick Hotel, Columbus Ohio, March 20-22.

American Petroleum Institute, division of production, Mid-Continent district spring meeting, Herring Hotel, Amarillo, March 21-23.

North Texas Oil and Gas Association annual meeting, Kemp Hotel, Wichita Falls, Tex., March 24.

Texas Independent Producers and Royalty Owners Association, fifth annual meeting Beaumont, Tex., March 27-28.

New England Gas Association, annual meeting, Hotel Statler, Boston, March 29-30

April

American Gas Association, industrial and commercial gas section, conference on industrial and commercial gas, Shoreham Hotel, Washington, D. C., April 2-4.

American Society of Mechanical Engineers, spring meeting, Atlanta, April 2-5

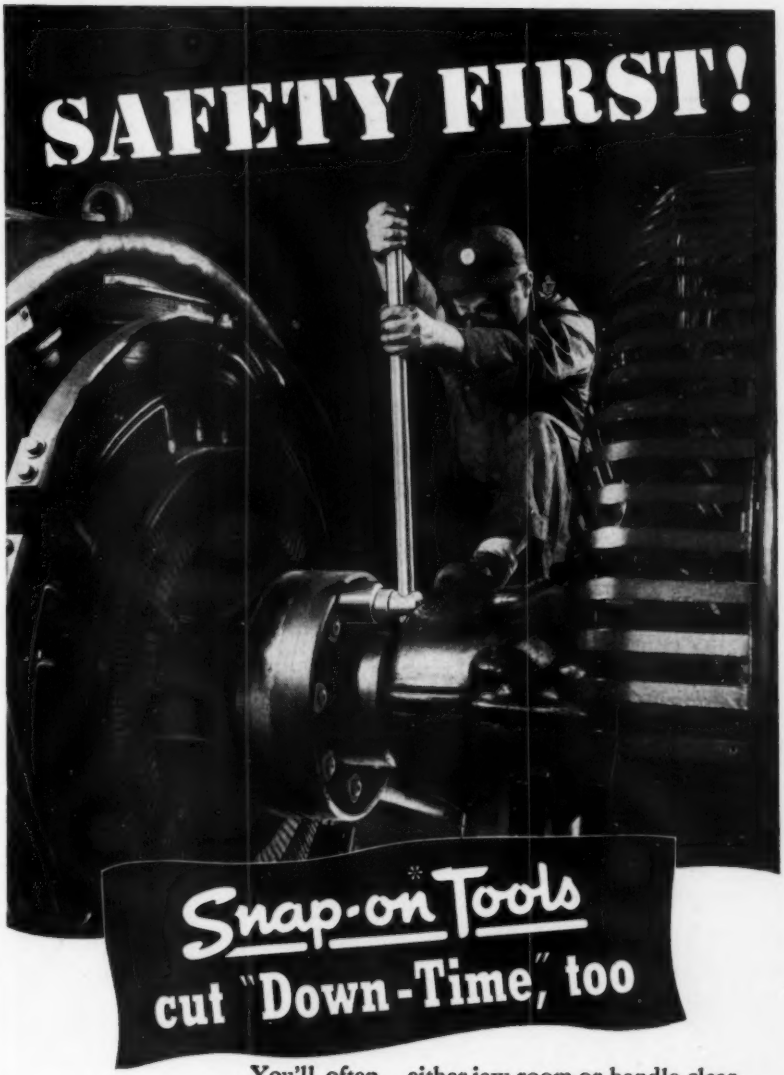
Oil-Heat Institute of America, annual convention and National Oil-Heat Exposition, Navy Pier and Palmer House, Chicago, April 2-6.

Instrument Society of America, New Jersey section, Essex House, Newark, N. J., April 3.

American Petroleum Institute, division of production, Eastern district meeting, Deshler-Wallick Hotel, Columbus, Ohio, April 3-5.

New York Oil Heating Association, Inc., Hotel Statler, New York, April 9.

Mid-West Regional Gas Sales Conference,



You'll often save enough *in labor-time alone,* to pay for the *right* Snap-on Tool to reach hard-to-get-at spots such as these generator coupling flange nuts. The more important savings in "down-time" are so much "velvet."

On this job, as you can see, there's no room for the head of a ratchet wrench, nor is there either jaw-room or handle-clearance for an open-end wrench. But a Snap-on L-53 Sliding Bar does the trick, with a safe, sure, snug fit and an easy half-turn-at-a-time action, without once disturbing the grip of the socket.

Ten to one, there are maintenance or overhaul jobs just as time-wasting, potentially, as this in your plant. And the odds are still better that there are many Snap-on Tools that would swiftly pay for themselves. Here Snap-on's nation-wide tool service can be mighty helpful!

Write for industrial catalog and 104-page general catalog!

SNAP-ON TOOLS CORPORATION
8098-A 28th Avenue
Kenosha, Wisconsin

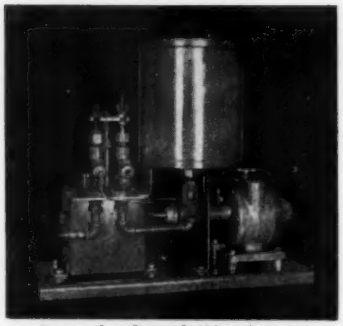
*Snap-on is the trademark of Snap-on Tools Corporation.

Fast Expanding to meet your needs

...the *Manzel* Chemical Feeder Line

NEW Rotary Gas Drive Feeders

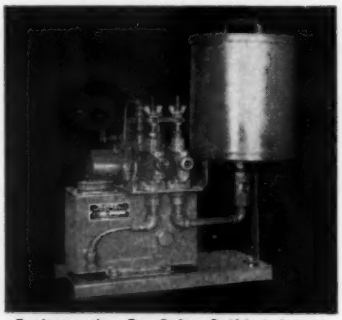
Efficient, dependable, Rotary Drive Motor operates on as low as 3 lbs. pressure.



Rotary Gas Drive Self-Lubricated

NEW Self-Lubrication

Automatic built-in system assures *complete* lubrication of Gas Motors, protects against corrosion and frequent stoppage. Available in either Rotary or Reciprocating Drive, and in kit for converting your present motor.



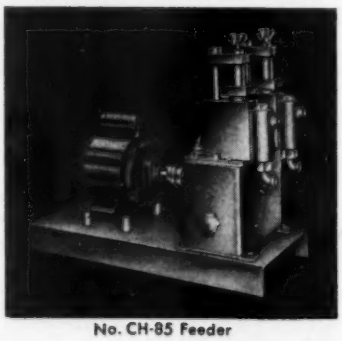
Reciprocating Gas Drive, Self-Lubricated

NEW Extra Large Series '85' Feeders

Adjustable to pump up to one gallon of liquid per minute per feed.

PLUS

Numerous other models, ranging in capacity from a few drops to 17.5 gallons per hour per feed.



No. CH-85 Feeder

Though Manzel Chemical Feeders are widely used and respected throughout the petroleum industry, we are working every day to add improvements, new features, and new models to the line. The new equipment described above is similar in principal to the other 'time-tested' Manzel Chemical Feeders, automatically injecting the chemical in exact proportion to the amount of liquid being pumped. Multiple units may be supplied with any number of feeds. Ask your Manzel Representative for details, or write....

Manzel

336 Babcock Street
Buffalo 10, N. Y.

Edgewater Beach Hotel, Chicago, April 9-11.

Michigan Petroleum Association, annual spring convention, Detroit Leland Hotel, Detroit, April 10-11.

Southwestern Gas Measurement Short Course, University of Oklahoma, Norman, April 10-12.

American Institute of Electrical Engineers, District 4 meeting, McFadden-Deauville Hotel, Miami, April 11-13.

American Gas Association, distribution, motor vehicle, and corrosion conference, Hotel Peabody, Memphis, April 16-18.

American Society of Lubrication Engineers, annual convention and lubrication show, Bellevue-Stratford Hotel, Philadelphia, April 16-18.

National Petroleum Association, Hotel Cleveland, Cleveland, April 18-20.

American Petroleum Institute, Rocky Mountain district spring meeting, Gladstone Hotel, Casper, Wyo., April 19-20.

Southern Gas Association, Buena Vista and Edgewater Gulf hotels, Biloxi, Miss., April 23-25.

American Association of Petroleum Geologists, Society of Economic Paleontologists and Mineralogists, Society of Exploration Geophysicists, joint annual meeting, Jefferson Hotel, St. Louis, April 23-26.

Natural Gasoline Association of America, annual convention, Mayo Hotel, Tulsa, April 25-27.

Indiana Gas Association, French Lick Springs Hotel, French Lick, Ind., April 26-27.

American Gas Association, industrial and commercial gas section, industrial gas school, William Penn Hotel, Pittsburgh, April 29-May 4.

American Geophysical Union, thirty-second annual meeting, National Academy of Sciences, Washington, D. C., April 30-May 2.

American Petroleum Institute, division of refining, sixteenth mid-year meeting, Mayo Hotel, Tulsa, April 30-May 3.

May

American Institute of Electrical Engineers, District 1 meeting, Hotel Syracuse, Syracuse N. Y., May 2-4.

New York Oil Heating Association, Inc., Hotel Statler, New York, May 7.

American Gas Association, Natural-Gas Department, Dallas, May 7-8.

Independent Petroleum Association of America, mid-year directors' meeting, Cosmopolitan Hotel, Denver, May 7-8.

Gas Appliance Manufacturers Association, natural-gas department spring meeting, Dallas, May 7-9.

Liquefied Petroleum Gas Association, annual convention and trade show, Stevens Hotel, Chicago, May 7-10.

American Petroleum Institute, division of production, Pacific Coast district, spring meeting, Biltmore Hotel, Los Angeles, May 10-11.

American Institute of Chemical Engineers, regional meeting, Hotel Muehlebach, Kansas City, May 13-16.

American Gas Association, operating section, production and chemical conference, Hotel New Yorker, New York City, May 14-16.

Pennsylvania Gas Association, Wernersville, Pa., May 15-17.

American Institute of Electrical Engineers, District 5 meeting, Loraine Hotel, Madison, Wis., May 17-19.

NOMADS

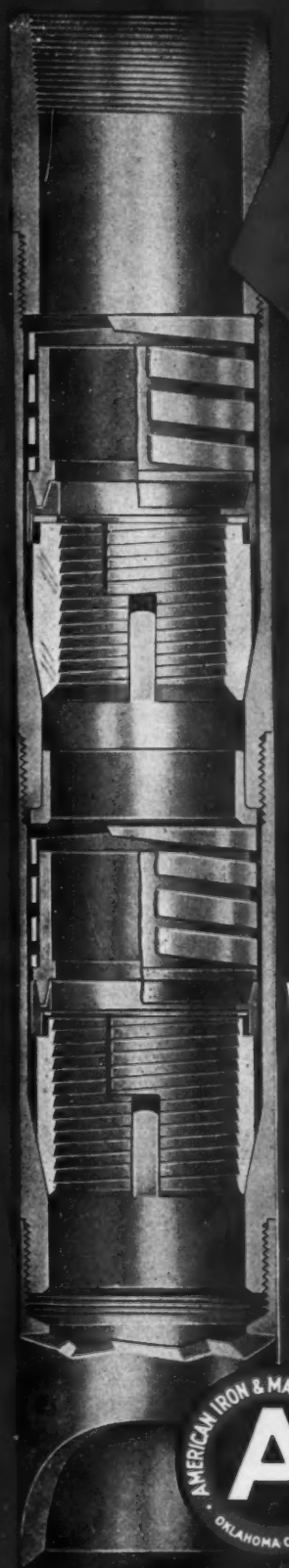
Tulsa Nomads, third Friday of each month. After Five Room, Tulsa Hotel.

Dallas-Fort Worth Nomads, first Monday of each month, Greater Dallas Club.

Houston Nomads, second Monday of each month. Ye Ole College Inn, Houston.

Los Angeles Nomads, second Wednesday of each month, Jonathan Club.

New York Nomads, first Monday of each month, Louis Sherry's, 300 Park Ave.



KEEP IT HANDY!

You Know You Have Good HOLE INSURANCE

With this American Iron Releasing & Circulating Overshot on your derrick floor!

That's right! When you keep this all-purpose fishing tool and its accessories in readiness on your derrick floor, you're prepared for any fishing job . . . ready when it needs to be done. That's why we say it's good "hole insurance"! It eliminates costly delays by making it possible for you to get a fishing job under way and completed in double-quick time. Then you're back to making hole—and making money!

American Iron Overshots are ruggedly constructed; simple in design; have quick positive releasing action. (See Composite Catalog pages 234-36). And you can always get slips and packer rubbers at your nearest supply store!

AMERICAN IRON & MACHINE WORKS CO. OKLAHOMA CITY U.S.A.

Available Thru Your Supply Store

AMERICAN IRON & MACHINE WORKS CO.

OKLAHOMA CITY, OKLAHOMA — BOX 1177 — PHONE L. D. 518

District Office: Houston, Texas

Export Office: 11 West 42nd, New York City

V
4
9
3
7
U
A
1
8
5
MI

WHEN THE GOING IS TOUGH

W.C. NORRIS, MANUFACTURER, INC.

TULSA, OKLAHOMA

WEST COAST DISTRIBUTORS:
HICKEY PIPE & SUPPLY CO.
Los Angeles

Since 1932

BRANCHES:
HOUSTON, KILGORE, ODESSA, TEXAS;
SALEM, ILLINOIS; CASPER, WYOMING
EXPORT: 30 ROCKEFELLER PLAZA, NEW YORK CITY

Published every Thursday by The Petroleum Publishing Co., 211 S. Cheyenne, Tulsa, Okla. Founded in 1902. Name changed to The Oil and Gas Journal in 1910 by Patrick C. Boyle.

P. C. LAUINGER
President

S. H. ROURKE
Executive Vice President

HANSON B. PIGMAN
Circulation Manager

ADVERTISING
MITCHELL TUCKER
Vice President

Houston Office
Sterling Building, Phone Charter 4626
WAYNE RIVES
Vice President, Gulf Coast Sales
JOHN M. SPEARS
Representative

New York Office
415 Lexington, Phone Murray Hill 2-4852
CHARLES A. WARDLEY
Eastern Manager
ROBERT N. CAIRD, JR.
Representative

Chicago Office
105 West Madison, Phone Central 6-2537
C. R. FARMER
Manager
E. S. KLAPPENBACH
Representative

Pittsburgh Office
429 Fourth Ave., Phone Atlantic 1-4835
ALFRED M. JONES
Manager

Tulsa Office
211 S. Cheyenne, Phone 3-6291
JOHN D. REILLY
Mid-Continent Manager
J. PARKER HOLLAND
Production Manager

Los Angeles Office
650 S. Grand Ave., Phone Vandike 0722
DONALD O. HANSON
Manager

England Office
111 Thorley Lane, Timperley, Cheshire
HARRY BECKER
European Representative
Phone Ringway 4702

Subscription rate to the petroleum industry, United States and foreign, 1 year, $3.00. Single copies, 50 cents. Back copies when over a year old, one dollar. Note: Payments from outside the U.S.A. may be in the form of an international money order or check on a U.S.A. bank. Entered as second-class mail matter at Tulsa, Okla., under Act of March 3, 1879. Copyright 1951 by The Petroleum Publishing Co.

Member
Audit Bureau of Circulations
Associated Business Papers

JOURNALLY Speaking

Close Figuring

FOR the most part, our favorite oil publication steers shy of what is opprobriously termed prophetic journalism, but we are justly proud of the statistical forecasts we make periodically. This is because our forecasts aren't based on prophecy or crystal gazing, but on careful surveys and the collection and weighing of all possible facts.

Probably the most widely used of our forecasts is our semiannual report on the number of wells the oil industry plans to drill. This is important information for drillers, producers of drill pipe and casing, and many others.

In our Midyear Report issue last July we predicted that a total of 43,084 wells would be drilled in the United States during 1950. This figure, conveniently rounded to 43,000, was accepted by the oil industry, the steel industry, and the Government as the industry's goal.

Wot hoppen? Well, our weekly completions report, which appears in our "Current Statistics" department every week and which includes a cumulative total for the year, shows that as of December 30 there were 42,999 wells completed during 1950. How's that for hitting a prediction on the nose?

But that ain't all. Our weekly report necessarily has a little lag because the word on some completions is always slow in arriving. When the returns from the outlying precincts are all in our final figure for the year will be a little higher, bringing it even closer to our forecast of 43,084.

Of course, what you want to know now is our prediction for 1951. For this you will have to wait until next week, when you can read it in our annual Review and Forecast issue.

At "E's"

IN this space on December 28 there appeared a lengthy explanation of the spelling of Kelly (or Kelley) field in Scurry County, the essence of which was that the field was named Kelley but the Texas Railroad Commission "deemed it necessary" to spell it Kelly.

After this opus appeared, one of our editors tiptoed into our sanctum and said: "I have an article on 'that field' and I want to know how to spell its name, but after reading your column I'm still in the dark."

Just so. Who determines the name of a field, anyway, the man who names it or the Texas Railroad Commission? The matter was presented to a staff conference, and after due deliberation and the careful weighing of all arguments pro and con, our editorial policy was fixed. Said policy can be stated as a paraphrase of Stephen Decatur's famous toast, thus:

"The Texas Railroad Commission: In its spelling of field names may it always be right, but, right or wrong, the commission."

So, on page 58 of this issue you will find an article about Kelly (one "e") field, and we feel very sorry for this indignity to Mr. Frank H. (two "e's") Kelley, who, save for the mysterious and inexorable workings of a government agency would have been the godfather of this now-famous field.

But wait. In that article you will notice a reference to the "Buffaloe area." That's right, buffalo with an "e" on the end. Now who ever heard of spelling buffalo with an "e" on the end?

Well, our research discloses, this area was named for a man who spelled his name that way. Perhaps that terminal "e" got there by circumstances similar to those which impelled Mr. Kelley's forebears to change their spelling *(Journally Speaking, op. cit.)*. The Supreme Court of the United States, in a case which we haven't space to tell you about, has ruled that a man has a right to spell his name the way he pleases, so we won't quarrel with Mr. Buffaloe.

We come back to the Texas Railroad Commission. If the TRC is going to champion a movement for simplified spelling (a cause which would have the endorsement of every writer, editor, and stenographer) that is all very fine. But let's have some consistency. If we're going to knock the "e" out of Kelley, let's knock it out of Buffaloe, too.

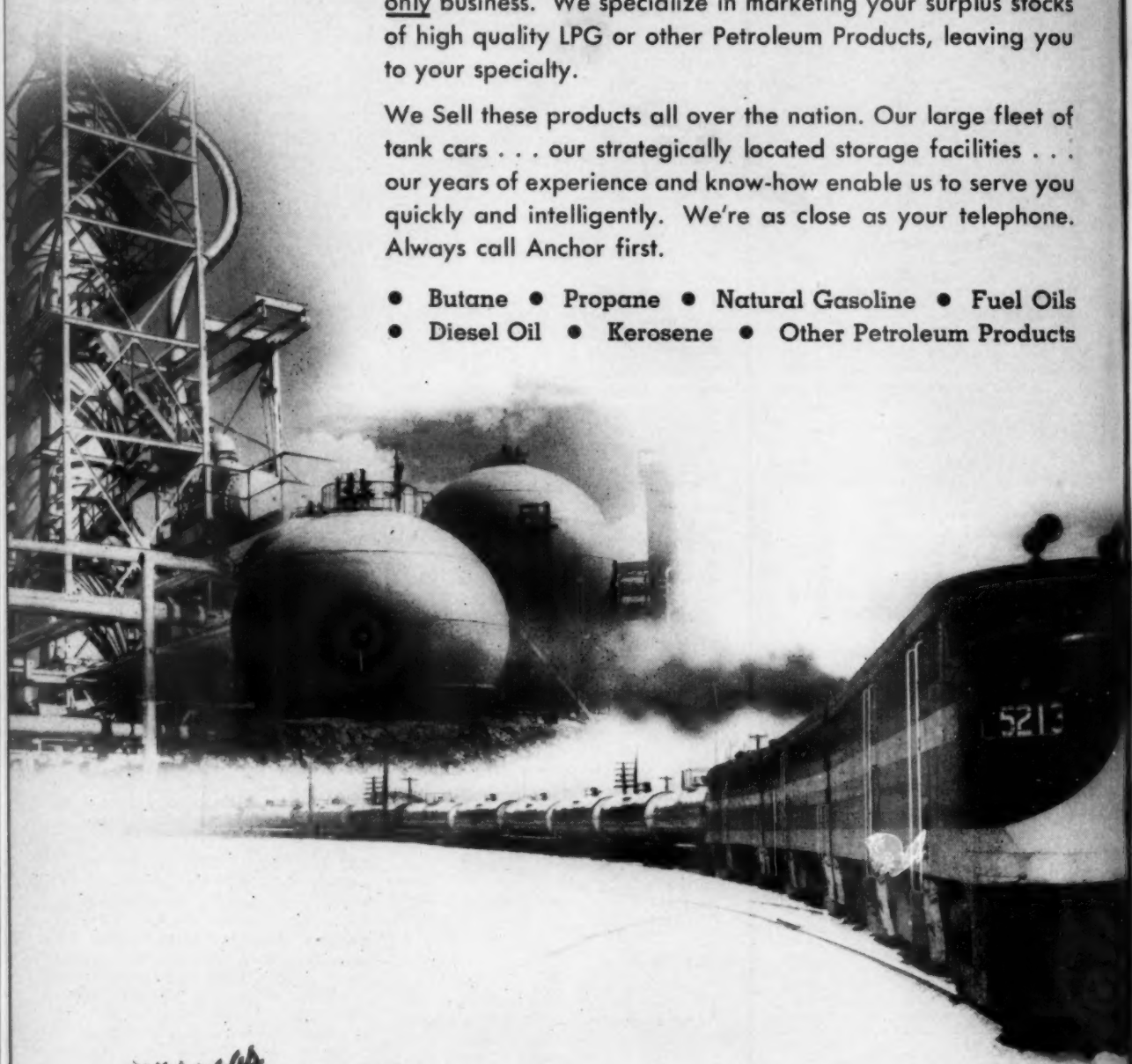
Henry D. Ralph

Merchants in Petroleum Products

Buying and Selling Petroleum Products is our business . . . our only business. We specialize in marketing your surplus stocks of high quality LPG or other Petroleum Products, leaving you to your specialty.

We Sell these products all over the nation. Our large fleet of tank cars . . . our strategically located storage facilities . . . our years of experience and know-how enable us to serve you quickly and intelligently. We're as close as your telephone. Always call Anchor first.

- Butane • Propane • Natural Gasoline • Fuel Oils
- Diesel Oil • Kerosene • Other Petroleum Products



Anchorgas

ANCHOR PETROLEUM COMPANY • TULSA

the OIL AND GAS JOURNAL

January 18, 1951

VOL. 49, NO. 37

EDITOR
C. O. WILLSON

MANAGING EDITOR
Kenneth B. Barnes

NEWS EDITOR
Henry D. Ralph

REFINING EDITOR
George H. Weber
415 Lexington, New York

INTERNATIONAL EDITOR
Dahl M. Duff
415 Lexington, New York

PIPE-LINE EDITOR
Paul Reed

TECHNICAL EDITOR
W. L. Nelson

ASSOCIATE EDITORS
Lynn M. Nichols
Neil Williams
R. B. Tuttle
Philip C. Ingalls
John C. Casper

DISTRICT EDITORS
D. H. Stormont
650 S. Grand, Los Angeles
Carl F. Hoot
Mercantile Bank Bldg., Dallas
Victor Lauriston
35 Stanley, Chatham, Ont.
Bertram F. Linz
611 Albee Bldg., Washington
Leigh S. McCaslin, Jr.
Sterling Bldg., Houston
Joseph A. Kornfeld
Sterling Bldg., Houston
John C. Reidel
211 S. Cheyenne, Tulsa
William P. Sterne
211 S. Cheyenne, Tulsa
Robert J. Enright
211 S. Cheyenne, Tulsa
Roy F. Carlson
McClintic Bldg., Midland, Tex.

EDITORIAL ASSISTANTS
Polly DeArmond, Tulsa
Connie Bahos, Tulsa
Lucy Dee Owen, Houston

ART DIRECTOR
C. Dudley Johnston

CORRESPONDENTS AT
Denver, Pittsburgh, Calgary, Columbus, Ashland, Ky., Oil City, Pa., and Mount Pleasant, Mich.

• NEWS FEATURES

Pipe-Line Contractors Expect to Lay 20,000 Miles of Line During 1951 ... 29
Problems Facing Pipe-Line Contractors Are Mounting ... 30
Lid May Be Put on Content of Tetraethyl Lead for Auto Gasoline ... 31
Reaction to Proposed Limit of TEL Content for Gas Is Varied ... 32
Drop in Octane Won't Go Below That of Last Summer ... 32
Spindletop Was Industry's "Testing Ground," Geologist Says ... 33
Cram Calls on Geologists to Use Imagination to Find More Oil ... 34
Spindletop Speakers Air Views on Oil, U. S. Defenses ... 35
Texas Crude Buyers Want 90,959 Bbl. Daily More Oil During February ... 35
Efforts to Obtain Oil, Gas-Conservation Law in California Expected ... 36
Government Seeks Accord With States, Companies on Tidelands ... 36
PAD Official Cites Deteriorating Situation in Supply for Oil Industry ... 37
Industry Group to Look Into Petroleum, Gas Material Needs ... 37
Container Makers' Plight Will Be Studied by Task Group ... 38
Policies on Steel Exports Haven't Changed Since World War II Days ... 39
PAD Pressed for Separate Gas-Controls Setup by A.G.A. ... 39
U. S. to Spend 7.6 Billion on Defense, Domestic Programs ... 40
Crude, Products Imports Drop 19,000 Bbl. Daily in November ... 41
Offshore Test Planned by Aramco in Persian Gulf ... 42
New Zealand Government Sponsors New Oil-Production Attempt ... 44
Outlook for Resumption of Exploration Activities in Egypt Discouraging ... 44

• ENGINEERING-OPERATING FEATURES

Wax and Lube-Oil Manufacture at Sinclair's East Chicago Plant ... 50
West Sinton: South Texas' Most Active Drilling Area ... 54
Development Report: Scurry Reef Fields ... 58
Small Infractions Create Major Errors in Flow-Meter Measurement ... 60
Why Forecast?—The Importance of Long-Range Planning ... 64
Pennsylvania Hot Spot—High-Pressure-Gas Drilling at Leidy Field ... 70
Progress in Metals ... 82
Refiner's Notebook—Fats and Greases ... 85
Engineering Fundamentals—Chart for Conversion of Capillary Pressure ... 87
Oil and Gas Equipment Digest ... 90
Book Reviews ... 134

• EXPLORATION-DEVELOPMENT

On Estimates of Proven Reserves ... 107
Highlights of Week's Developments ... 107
Reports by Areas Start on Page ... 108

• REGULAR DEPARTMENTS

They Say ... 17
Calendar of Events ... 18
Journally Speaking ... 23
Editorial ... 27
This Week ... 28
Watching Washington ... 38
International News ... 42
Personals ... 46
Deaths in the Industry ... 49
Natural-Gas News ... 93
Refining News ... 95
Pipe-Line News ... 99
On the Line ... 100
Drilling Contractors ... 103
Exploration Statistics ... 124
Production Statistics ... 125
Refining Statistics ... 126
Market Statistics ... 127
Equipment Men in News ... 128
Advertisers' Index ... 135

LORD HALL LIBRARY

IMPORTANT NEWS FOR REFINERS

Now YOU CAN BLEND

MORE NATURAL GASOLINE and BUTANE INTO YOUR WINTER MOTOR FUEL

NATURAL GASOLINE
Butane
Propane
Iso-Butane
Iso-Pentane
Hexane
Heptane
STA-VOL-ENE

A.S.T.M. COMMITTEE D-2 (Petroleum Products) HAS RAISED MAXIMUM VAPOR PRESSURE TO 15 lbs. R.V.P.

FOR NORTHERN STATES. . .

Approval has been granted refiners marketing in the northern states to increase the maximum vapor pressure in their gasoline from 13.5 to 15 lbs. R.V.P. This action was taken by the American Society for Testing Materials Committee D-2 (Petroleum Products) at its recent annual meeting in Atlantic City, N. J. Revision of its specifications D-439-49T by A.S.T.M. Committee provides that the Reid vapor pressure may be raised 1.5 lbs. in the following states:

Section 1

Idaho	New Hampshire
Iowa	North Dakota
Maine	South Dakota
Michigan	Vermont
Minnesota	Wisconsin
Montana	Wyoming

Section 2

Colorado	Indiana	Nebraska	Pennsylvania
Connecticut	Kansas	Nevada	Rhode Island
Delaware	Kentucky	New Jersey	Utah
District of Columbia	Maryland	New York	Virginia
Illinois	Massachusetts	Ohio	Washington
	Missouri	Oregon	West Virginia

WARREN PETROLEUM CORPORATION

Producers, Manufacturers, Exporters and Marketers

Export Terminals: Corpus Christi, Port Arthur, Baytown, Texas City, and Norsworthy, Houston, Texas.

TULSA 2, OKLAHOMA CABLE ADDRESSES: Stavolene, Warren

Crude Oil, Natural Gasoline and Liquefied Petroleum Products

Information, Please

The petroleum industry is preparing for the defense emergency as though there were no defense emergency. In other words, it is planning to take care of increased needs of all its regular customers for all types of products, plus some undetermined extra quantity for the military, and is planning to do this by its customary methods.

Under the circumstances it can do nothing else, and would be remiss if it did not do this. In the absence of definite word from Washington, the industry has to assume that it must meet all civilian demands for products, and that most of them will be higher than last year. It has to assume that it must expand its production, transportation, and refining facilities pretty much across the board. It has to assume that it will be able to get the steel and equipment it needs.

But industry leaders know this is unrealistic. Already tonnage steel items are in short supply, and manufacturers of essential equipment cannot promise delivery for 6 months or more in many instances. This condition is certain to get worse as more defense orders are placed and more industries attempt to expand to meet what they assume will be demanded of them.

But as yet the industry has received no marching orders from Washington. The petroleum industry would be the last to ask government direction in normal times, but in a war economy such as we have now it must know what it is expected to do and to do with.

For example, oil producers complain that steel they need for drill pipe and casing is going into new pipe lines, and who is there to say which should have priority? If the oil industry must "divide its pie" of steel, it must first be told the size of its pie and the number of mouths to feed. If a limited supply of "components" such as compressors, instruments, valves, and electrical equipment must be divided among the oil and other industries, there must be some plan for making the best use of the industry's share.

But first, probably, the industry should know what demands it must meet. Will the Air Force, for example, want huge quantities of high-octane gasoline or a preponderance of jet fuel? Different refining equipment will be required and different civilian uses will be pinched by the answer. Will natural gas and L.P.G. be called on to meet a deficiency of home-heating oil?

These are but scattered examples of how the petroleum industry is trying to plan in the dark. It cannot plan intelligently nor make efficient use of its facilities and materials without better information on what products will be needed and what equipment it will be allowed.

It is high time that the Government provide at least some of this information and set up some sort of administrative machinery to let operators know what they can expect in the way of steel and equipment.

THIS WEEK

MATERIALS—PAD deputy administrator says situation in obtaining goods for oil industry is fast deteriorating, will get worse until definite programs for equitable distribution are developed. . . . ¶Study of material and chemical needs of oil, gas industries initiated by NPC. . . . ¶Supplies of steel containers becoming critically short, with some small manufacturers reporting they may be forced to shut down due to lack of steel. . . .

PIPE LINES—Pipe-line contractors look forward to big year in 1951, expect to lay 20,000 miles of line throughout world. . . . High rate of looping, trend toward larger-diameter products lines seen. . . . ¶Contractors can't agree on whether operating as "poor boy" or "hot shot" is most profitable, but concede that taxation, specifications, prospects for new contracts are leading problems to face. . . . ¶Major contracts let on Platte pipe-line project. . . .

INDUSTRY—PAD announces it may put lid on content of tetraethyl lead for motor gasoline to conserve product for avgas. . . . But drop in octane won't reduce quality of auto fuel below general level prevailing last summer. . . . ¶Reaction on proposed cut varied. . . . ¶DeGolyer declares Spindletop field has been an inspiration, "testing ground" for many methods and techniques now common to oil industry. . . . Continental Oil vice president urges geologists to use more imagination in an attempt to find more oil. . . . ¶Efforts to obtain oil, gas-conservation law expected to be made in California Legislature. . . .

TIDELANDS—Interior Department officials sound out congressional leaders and oil-company executives regarding management legislation for tidelands which would be acceptable to companies without relinquishment by Government of paramount rights given it by Supreme Court. . . . ¶Half-dozen bills introduced to return submerged lands to states. . . .

WASHINGTON—Commerce Department policies on export of steel line pipe, tubular goods have not changed since days of World War II, I.P.A.A. counsel told. . . . ¶Export of pipe for Middle East pipe-line projects upheld as essential to U. S. if another war comes. . . . ¶PAD pressed for separate gas-control setup by A.G.A.

PRODUCTION—Bureau of Mines reports crude-oil production in United States during 1950 totaled 1,973,000,000 bbl., an average of 5,400,000 bbl. daily. . . . Figure represents gain of 7 per cent over 1949, but 2 per cent less than record production of 2,020,000,000 bbl. in 1948. . . . ¶Crude buyers want 90,959 bbl. more Texas oil daily during February, Railroad Commission reports. . . .

IMPORTS—Crude and products imports in November averaged 867,000 bbl. daily, a decrease of 19,000 bbl. daily from October, but an increase of 145,000 bbl. daily over November 1949. . . . Crude alone averaged 442,000 bbl. daily compared with 500,000 bbl. daily for October and 457,000 bbl. daily for November of last year. . . . ¶Increased imports of foreign oil urged in annual report of Council of Economic Advisers. . . . ¶Treasury Department estimates amount of crude, fuel oil permitted to be imported at reduced excise-tax rate under Venezuelan Reciprocal Trade Agreement. . . .

ACTIVITY—Total production for week ended January 13 averaged 5,680,300 bbl. daily, a decrease of 32,625 bbl. daily from previous week. . . . ¶Well completions for the week totaled 848 compared with 677 in first week of January and 817 in same week of 1950. . . . Wildcat completions gained 30 wells over last year to 172 wells. . . . ¶Rotary rigs operating in United States on January 7 decreased to 2,234 rigs from 2,293 a week earlier. . . .

TRENDS—Refinery demand for four major products for 5-week period ended January 6 was about 14 per cent greater than for same period a year earlier. . . . Demand for these products exceeded 6,000,000 bbl. daily for the first time in the 5-week period ended December 16. . . . ¶Greatest increase was for distillate fuels, up about 24 per cent. . . .

PARTIAL ECLIPSE?—This will be a big year for pipe-line construction, contractors report—if steel is available. But some oil producers say too much steel is going to pipe mills, not enough into drill pipe and casing. And Washington predicts that shortages will get worse before the Government perfects plans for allocation to industry.

Big Year Ahead

Pipe-line contractors expect to lay 20,000 miles of line throughout world in 1951; high looping rate seen

Paul Reed and Joseph A. Kornfeld

HOUSTON. — American contractors will lay about 20,000 miles of pipe lines throughout the world during 1951, maintaining the record construction levels established during the past 2 years, it was stated at the third annual convention of the Pipe Line Contractors Association here last week.

The group predicted a high rate of looping and the laying of new major natural-gas petroleum systems, and foresaw particularly that an unusually large mileage of products lines of larger diameters would be built during the next several years.

"We are in an era of big-inch pipeline building," one official said, adding that "the economic advantages of the big-inch were not fully exploited until the postwar period."

The group, made up of more than 400 representatives of 100 pipe-line contractors and suppliers, also heard about new automatic-welding practices for increasing the effectiveness of double-jointing, radiographic inspection of welding, depreciation methods, and other taxation matters.

Taxation. — The lack of mandatory methods in the Internal Revenue Code for accounting for the income from construction contracts was pointed out by P. M. Mattison, C.P.A., Price, Waterhouse & Co., Houston. Many contractors, he said, are surprised to learn of this condition.

He said that it is not recognized by many contractors that there are advantages in the selection of optional procedures which are acceptable, provide that they are applied consistently.

Contractors showed interest in obtaining substantial reductions in income taxes which are possible for some firms by changing their methods of accounting from a "completion" to a "percentage" basis in the first 90 days of the fiscal year. For most contractors, such a changeover would have to be made by March 31 since the majority operate on a calendar year.

Advantages of the "percentage-of-completion" method over the "completed-contract" method for certain situations were cited by the speaker in a formal address on the topic of "Federal Income Tax Matters of Interest to Contractors."

"The completed-contract method of reporting income from long-term contracts is a very conservative method of accounting and has the advantages of not anticipating income prior to being earned, thus eliminating the possibility of reporting profits which may not materialize or which may evaporate as the result of unexpected costs."

"It has a tendency," he stated, "of bunching income in the year of completion, thus resulting in wide fluctuations in income from year to year."

This bunching of income, he said, may be particularly disadvantageous to individuals and partnerships since "the bulk of income may be taken away from such individuals through imposition of higher surtaxes than would have been imposed if, for example, the percentage-of-completion method had been used."

Percentage method. — Advantages of the percentage-of-completion method were explained by the speaker as "reflecting a more steady flow of income than the completed-contract method, since profit is allocated over the period of performance.

"This may be quite important to individuals and partnerships because of surtax rates," he said. "At the present time, it is of great importance to corporations as well, in view of the imposition of higher corporate income-tax rates and the enactment of an excess-profits tax law."

The principal disadvantages of the completion method, he stated, was that it may result in the reporting of profits in one or more earlier years even though a loss is sustained on the completion of the contract."

Mattison said that the percentage-of-completion method "more nearly reflects financial conditions and operating results for many firms."

The accountant explained that the Excess Profits Tax Act of 1950 permits a corporation on a completed-contract basis of accounting to elect to use the percentage-of-completion method for excess-profits-tax purposes only. Accordingly, a corporation operating on the completed-contract method could continue to use that method for normal and surtax purposes, an important concession, which should not be overlooked by contractors now on the completed-contract basis of reporting profits.

Inspection.—W. A. Saylor, chief metallurgist, Consolidated Western Steel Corp., Los Angeles, recommended to the association that a set of standards be established covering radiographic defects.

In an address on "X-Ray Inspection —Weld and Plate Defects on Pipe and Their Interpretation," the metallurgist pointed out how the pipe-line industry has made extensive use of both the X-ray and gamma-ray methods of radiographic inspection since World War II. The former method, he said, is noted for its ability to obtain good definition, while the latter is valuable for its flexibility.

Absorption of X-ray or gamma-ray radiation in a given material were explained by Saylor as being dependent upon:

1. The wave-length and intensity of the incident radiation;

2. The atomic structure and density of the material; and

3. The thickness of the material examined.

The metallurgist believes that the best method for analysis of X-ray defects would be to section the defective area and to apply a destructive test, such as macro-etch, tensile, or bend. From the interpretation would be derived an opinion on both the extent of the defect and a prediction as to its ultimate effect upon the service for which it is intended.

Precaution needed. — On thin-wall, high-strength, large-diameter transmission pipe where design has utilized every possible advantage resulting in high working stresses, Saylor explained that "it is essential that every inspection tool and every precaution be exercised all the way from the pipe manufacturer to putting the pipe in the ground."

"Proficiency in the interpretation of radiographs," he said, "requires a basic knowledge of the natural shape and principle location of various weld defects and inclusions."

Types of defects which show up on radiographic inspection were reviewed by the speaker to include lack of penetration, cold laps, lack of fusion, lack of root bead, burn through, and rough root bead.

While the speaker said that "radiographic inspection of welds has, and will continue to be, necessary as a method of control," he warned that "we should not disregard good visual inspection recognizing as we do that visual-weld and plate defects are more critical in many respects than internal-weld defects in this type of pipe. These visual defects have caused failures at the high working stresses involved."

Officers.—L. H. Favrot, Houston Contracting Co., was elected president of the association succeeding Ray L. Smith, El Dorado, Kans. Other new officers are Robert A. Conyes, Conyes Construction Corp., San Pablo, Calif., vice president; Robert Thomas, Texas-La. Contracting Co., Fort Worth, vice president; and E. J. Mahoney, Jr., Mahoney Contracting Co., Lansing, Mich., treasurer. Richard A.

PIPE-LINE CONTRACTORS' OFFICERS.—Shown at the annual banquet of the Pipe Line Contractors Association in Houston last week are officers and directors of the group. Front row, left to right: Richard A. Gump, Dallas, executive secretary; C. C. Bledsoe, Midwestern Constructors, Inc., Tulsa, director; T. A. Hester, Oklahoma Contracting Corp., Dallas, director; L. H. Favrot, Houston Contracting Co., president; Robert A. Conyes, Conyes Construction Corp., San Pablo, Calif., vice president; and H. C. Price, H. C. Price Co., Bartlesville, Okla., director. Back row, left to right: E. G. Morrison, Western Constructors, director; E. J. Mahoney, Jr., Mahoney Contracting Co., Lansing, Mich., treasurer; Ray L. Smith, Ray L. Smith & Son, Inc., El Dorado, Kans., director; M. S. Williams, Anderson Brothers Corp., Houston, director; and N. A. Saigh, N. A. Saigh Co., Inc., San Antonio, director. Also a director but not appearing in the photograph is Robert Thomas, Texas-La Contractors.

Gump, Dallas, was reappointed executive secretary for a fourth term.

Five new directors named for 2-year terms were: T. A. Hester, Oklahoma Contracting Corp., Dallas; C. C. Bledsoe, Midwestern Constructors, Tulsa; H. C. Price, H. C. Price Co., Bartlesville, Okla.; Ray L. Smith, and M. S. Williams, Anderson Brothers Corp., Houston.

Six directors held over for 1-year terms are: Conyes, Favrot; E. G. Morrison, Western Constructors; Mahoney, N. A. Saigh, N. A. Saigh Co., Inc., San Antonio, and Robert Thomas, Texas-La Contractors.

Contractors' Problems

Operating as "poor boy" or "hot shot" is controversial, but pipe liners agree problems they face are mounting

HOUSTON.—"Poor boy" or "hot shot"—that's a controversial question which finds no agreement among pipe-line contractors.

In pipe liners' parlance, hot-shotting means speeding up a construction job by throwing in all available ditching, laying, and backfilling equipment to complete the contract in the shortest possible time. To poor-boy a contract means getting by with the minimum amount of equipment and capital investment though the job takes longer.

Veteran pipe liners attending the meeting of the Pipe Line Contractors Association in Houston were questioned about current problems of the industry by members of the Journal staff.

They discussed welding techniques, inspection methods, business outlook, taxes and contract terms, but no question drew so much fire as the one about hot-shot or poor-boy methods. Here are some of the contractors' opinions:

Is it better to hot-shot or poor-boy a job?

C. C. Bledsoe, Midwestern Constructors, Inc., Tulsa: "That's a controversial point. We have been considering for some time the use of small crews and breaking them down into small increments, to be self-sufficient. The reason behind this is that we think that, with the big crews, if any thing breaks down they will not make any progress. On the other hand, if you have a series of small crews, perhaps one will go down but the remainder will make some progress. Weather has a lot to do with the hot-shotting or poor-boying of a job. When you find out, from long-range weather forecasting that weather is going to close in on a certain date, the manner of operation is to 'pour it on' then to get through with the job as soon as you can. If the job is muddy or rocky, sometimes it is advantageous to put in a smaller or poor-boy crew."

R. H. Fulton, R. H. Fulton & Co., Lubbock, Tex.: "I think it is better to poor-boy a job. All the money I have ever made has resulted from poor-boying. In other words, when you high-pressure a job, hot-shot as they call it, you throw in all your high-powered equipment, and step the job up. As a result, your expenses are so high that it is impossible to control your costs. When you poor-boy a job you sometimes receive a lot of criticism from the companies, but on the other hand you can keep down expenses."

Quay Martin, Parkhill Truck Co., Tulsa: "I think it is definitely better to hot-shot the job due to the hazards that are always involved in pipeline construction. In hot-shotting the job, you benefit the company for who you are doing the job. Under these conditions, everyone increases his chances of making more money and doing the job well."

What are the prospects for contracting during 1951?

M. S. Williams, Anderson Brothers Corp., Houston: "It seems to me we have just finished probably the greatest year in the history of pipe lining. From the plans that have been made by most of the companies in the pipeline field, it looks like 1951 will be an even bigger year than 1950, provided that the national emergency we are in now does not prevent delivery of pipe and other materials which are necessary for the construction of these pipe lines."

What about equipment maintenance and purchase in the light of present-day taxes?

N. A. Saigh, N. A. Saigh Co., Inc., San Antonio: "One of the great problems of contractors is to determine

how best, in the light of excess-profits taxes, they are going to be able not only to buy new equipment but maintain the equipment they have. It seems to me that if one were to start in business with a limited capital today he would have difficulty in succeeding if he had to make a major capital investment in equipment unless he were able to depreciate it by the Government. The formula should be the purchase of equipment on a 5-year basis if the Government will allow a 5-year life on equipment. The problem is that no equipment dealer can afford to sell equipment on a 5-year basis. The result is, even if you made a high rate of profit, 80 per cent of it will go to the Government in excess-profit taxes and you will be unable to pay for equipment. The rate of depreciation for pipe-line companies and pipe-line contractors should be accelerated."

What's new in automatic welding?

O. R. Smith, Smith Contracting Corp., Fort Worth: "I have been developing automatic welding for more than 15 years. This is the type of welding that will go down the right-of-way on very small, portable type of equipment. I have developed such equipment and placed it on demonstration at the convention. This type of welding will eliminate all poor welding in double-jointing or sectionizing. This machine is set up and it rolls the pipe, making its own weld at the same time. These welds will defy the owner or inspector in cutting them out and condemning them. This machine will make, and does make a 100 per cent perfect weld every time without fail."

Is inspection improving?

C. C. Bledsoe, Midwestern Constructors, Inc., Tulsa: "It is definitely improving. However, in some instances, companies are using inspectors who are not as good as they could be. One of the greatest problems we have encountered has been the interpretation of the X-ray picture. Everyone has a different idea of X-ray interpretation, including the superintendent, the welding foreman, the welder, the inspector, and the firm doing the X-ray work. There exists no uniformity of standards. It appears to be a matter of personal observation or private ideas. We don't want a split weld, we don't want a crack, an undercut, or anything of that nature. A little slag, we feel, is not harmful to the weld, because, in our opinion, it is impossible to keep slag out of a manually made weld."

What do you think of standardization of specifications of contracts?

Ray L. Smith, Ray L. Smith & Son, Inc., El Dorado, Kans.: "We have a committee finalizing our idea of standardizing specifications on welding. We have met with the American Petroleum Institute and the American Gas Association. They, in turn, have submitted their ideas on standardization of welding specifications. Within the next few months we will be able to submit to them and develop a standard set of welding specifications. I believe that it is to the advantage of our association and all of the pipe-line companies to try to work out a standard set of specifications and contracts. I also believe that most of the companies will welcome such a move."

What will be the effect of military draft of personnel?

R. D. Sheehan, Sheehan Pipe Line Construction Co., Tulsa: "I think that steps should be taken with the cooperation of contractors or companies. Consideration should be given to the national importance of the pipe lines to be constructed. Personnel is the root of our organization and the qualified men are the ones to follow through and build the line. It would take a great deal of time to select new men and train them in the event of a heavy draft of our personnel."

What are your observations on the growth of pipe-laying equipment?

J. D. Cummings, Crutcher-Rolfs-Cummings, Houston: "The little tractor we used to lay pipe with weighed about 2,000 to 3,000 lb. Today, these weigh about 15 tons and they look pretty big."

What is the future of the stringing contractor?

R. F. Parkhill, Parkhill Trucking Co., Tulsa: "I hope that the general contractors will quit stringing their own pipe and sub them out to the stringing contractors."

JOURNAL INTERVIEW.—A feature of the Pipe Line Contractors Association in Houston last week was an interview session conducted by members of the editorial staff of The Oil and Gas Journal, during which contractors were asked questions regarding their operations. Paul Reed, pipe-line editor, left, and Joseph A. Kornfeld, Houston district editor, center, are shown interviewing C. C. Bledsoe, Midwestern Constructors, Inc., Tulsa.

Octane Ceilings

Lid may be put on content of TEL for auto gasoline

WASHINGTON.—Plans for the first formal order to be issued by the Petroleum Administration for Defense were announced last week by Bruce K. Brown, deputy administrator, to put ceilings on the octane content of automotive gasoline.

Members of the industry will be called to Washington during the week of January 22 to discuss the order, which would limit premium-grade motor fuel to an octane rating of 90, intermediate grade to 86, and regular to 84.

Purpose of the order, Brown said, is to build up a reserve of tetraethyl lead, currently in steadily shortening supply, much as was done by PAW late in the war.

The order will make little or no difference in the ratings of gasolines used in the interior of the country but will reduce them along the coasts by as much as 2½ octanes, but Brown expressed the opinion this would not result in any noticeable effect on engine performance which could not be offset by adjustments in the timing.

Some rationing.—There are only two companies producing tetraethyl lead and one of them already has begun rationing its customers. The shortage is due to a combination of increased consumption of gasoline, the steady increase in antiknock quality, and increased production of aviation gasoline. Whereas the limit on tetraethyl has been 3 c.c. per gallon in automotive gasoline, which now will be cut to about 2.75 c.c., military aviation gasoline carries 4.6 c.c. per gallon.

Brown said PAD had hoped to avoid issuance of the order, but decided to do so when consideration of proposals for other ways of meeting the situation showed they were not feasible.

Steps outlined. — The steps outlined by Brown in reaching its conclusion were roughly as follows:

PAD considered whether an order was necessary to sustain aviation-gasoline production and concluded it was not.

Consideration then was given to a voluntary drop of 2 octanes by all

refiners. This would have treated all alike, including refiners in the Middle West who may not be effected by the order, but it was felt this was not feasible because it might freeze some companies in a disadvantageous position competitively and, further, since octane ratings vary in different parts of the country, might interfere with interchanges.

Regional orders also were considered but the idea was dropped because it was felt they would interfere with the free flow of gasoline between districts.

The action finally decided upon, Brown said, is expected to cause less disturbance of competition relationships within the industry than any other method of accomplishing the same result.

Reaction Varied

Proposed octane cut for gas praised, denounced

THE proposal of the Petroleum Administration for Defense to cut the octane rating on motor gasoline was met with praise and denunciation by two large oil companies following the agency's announcement last week.

Dr. Robert E. Wilson, chairman of the board of Standard Oil Co. (Ind.), was in accord with the proposal, and said:

"We heartily agree that the first duty of the petroleum industry is to supply the engine fuel needs of the armed forces. We are not in position to determine the impact of those needs on civilian gasoline but the Petroleum Administration for Defense is. We certainly think there should be some stockpiling of ethyl fluid to have a reserve for various possible emergencies.

"The cutback in octane numbers will impose no hardship on motorists. In this part of the country at least (Midwest), the octane ratings of gasolines will still be about as high as they were a year ago and much higher than they were in the World War II period. All but a small percentage of the cars will be able to operate on gasolines of the lower ratings without knocking. Some few may have some pinging under some conditions, but a moderate reduction in spark advance should eliminate this."

Opposed.—Robert G. Dunlop, president of Sun Oil Co., opposed to the cut, sent a telegram to Secretary of the Interior Oscar L. Chapman vigorously protesting the proposed order. He said:

"We strenuously protest today's proposed order which strikes a deadly blow at competition in the refining and sale of gasoline by placing arbitrary and discriminatory ceilings on octane numbers. This action if made effective would seriously injure the motoring public, particularly in eastern United States. It would deprive millions of motorists of high-quality gasoline now available to them or would force them to pay increased prices to get a motor fuel for the proper operation of their automobiles.

"There is absolutely no reason for taking such action unless it has as its purpose putting an end to the desire of at least some oil companies to do everything possible to give motorists high-quality gasoline at reasonable prices while at the same time meeting needs of the military services.

"Viewed in best light possible this order would establish a precedent for government standardization of gasoline quality which long has been abhorrent to both oil men and motorists. Such crippling of competitive efforts with harmful results to motorists is contrary to specific requirements laid down by Congress in the National Defense Act last year and is the type of action condemned by President Truman and Atty. Gen. McGrath in recent declarations.

"Of course national-defense needs must come first in all considerations and Sun Oil Co. already is providing more than its share of military aviation gasoline. We know it is vital to begin stockpiling tetraethyl lead. But this objective can be fully achieved by reduction on uniform percentage basis of lead supplies available to all refiners with such relief for unusual hardship cases as may be deemed necessary.

"Such an approach to the problem would assure saving of lead needed for stockpiling whereas the proposed order is no assurance whatsoever that such savings can be effectuated. Such uniform reduction of tetraethyl lead supplies would be fair and equitable to everyone concerned and would leave all refiners free to overcome by their initiative and ingenuity the difficulty imposed on them by a shortage of lead for motor fuel."

No Quality Loss

Drop in octane won't go below that of last summer

WASHINGTON.—The proposed PAD order putting a ceiling on the octane rating of motor gasoline will not reduce quality below the general level prevailing last summer.

This was revealed when the Bureau of Mines this week released the results of a nation-wide survey made in 212 cities during July and August 1950, conducted in cooperation with the American Petroleum Institute.

This showed that premium gasoline had an average octane rating of 90 by the research method or 82 by the motor method, while regular gasoline averaged 83.5 research or 78.2 motor. The proposed PAD ceilings would be 90 for premium and 84 for regular, by the research method.

Octanes higher.—On the average, the bureau found, motor fuel marketed last summer was 1.5 to 2 points higher than during the preceding summer and 1 point higher than during the winter of 1949-50.

Last summer's survey was broken down into 17 marketing areas, and the average octane ratings, by the research method, are shown in the accompanying table.

	Premium	Regular
Northeast	92.2	86.5
Mid-Atlantic	92.1	86.3
Southeast	91.2	85.8
Appalachian	90.8	86.0
Michigan	90.4	85.5
North Illinois	89.2	83.0
Central Mississippi	89.4	83.1
Lower Mississippi	90.6	84.1
North Plains	88.5	81.9
Central Plains	88.4	82.4
South Plains	89.2	81.9
Southern Texas	88.9	83.8
South Mountain states	88.2	80.1
North Mountain states	88.7	81.4
Pacific Northwest	90.9	82.3
Northern California	91.3	82.7
Southern California	89.9	82.3
National average	90.0	83.5

U. S. Crude Production Up

WASHINGTON.—Production of crude petroleum in the United States during 1950 totaled 1,973,000,000 bbl., an average of 5,400,000 bbl. daily, the Bureau of Mines reported in its annual preliminary survey of minerals production.

The 1950 output represented a gain of 7 per cent over 1949 but was 2 per cent less than the record production of 2,020 million barrels in 1948. A further gain of about 6 per cent in crude-oil production was forecast for 1951. The estimated value of crude petroleum at the well in 1950 was 5 billion dollars, an average of $2.54 a barrel, the same price as in 1949.

Imports of crude oil in 1950 increased 15 per cent over 1949; exports remained unchanged. Net imports of crude petroleum totaled 146 million barrels in 1950.

Marketed production of natural gas in 1950 was estimated to have increased 13 per cent over 1949 to a record of 6,124 billion cubic feet, valued at 404 million dollars at the well. All classes of consumers—residential, commercial, and industrial—showed approximately equal rates of growth. Industrial consumption kept pace after falling behind during the business slump of 1949. Active pipeline construction assures greater consumption in 1951.

Production of natural-gas liquids was estimated to have increased 11 per cent in 1950 to 4,620 million gallons and the production of liquefied petroleum gases to have increased 24 per cent to 3,018 million gallons, both setting new records. The increased output can be attributed to the larger volume of gas treated and to more complete recovery of L.P.G. from natural gas.

ATTEND SPINDLETOP CEREMONIES.—Visitors to the Spindletop Hall of Exhibits included many national leaders. Shown here, left to right, are: David Rockefeller, grandson of John D. Rockefeller, Sr., and vice president of Chase National Bank; John W. Newton, vice president and manager, refining division, Magnolia Petroleum Co.; B. Brewster Jennings, president, Socony-Vacuum Oil Co., Inc.; J. L. Latimer, president, Magnolia; and W. W. Leach, assistant manager, Magnolia's Beaumont refinery.

Industry "Testing Ground"

Spindletop has served as an inspiration, testing ground for techniques now common to industry, DeGolyer says

Leigh S. McCaslin, Jr.

BEAUMONT.—Spindletop has been the inspiration or testing ground for many of the ideas and techniques now common in the oil industry, E. DeGolyer, Dallas geologist, asserted last week at well-site ceremonies marking the fiftieth anniversary of the field's discovery.

DeGolyer was one of a large group of national figures who spoke during the 6-day celebration. In support of his statement that the field has been an inspiration or testing ground, he said little was known about salt-dome structures before the wave of wildcatting which followed the Lucas discovery. In fact, Prof. Gilbert D. Harris, of Cornell University, credits Lucas and his well with "starting this new branch of geological investigation."

It was also at historic Spindletop, DeGolyer said, that the first geophysical surveys in the American oil industry were made. A test torsion-balance survey was made there in early December 1922.

Lucas can be considered one of our first petroleum engineers, according to DeGolyer. He visited Spindletop in February 1904 after an absence of almost 3 years and expressed "advanced views" on oil-well spacing and reservoir management. At that time almost 30,000,000 bbl. of oil had been produced, much of it wasted. More than 1,200 wells had been drilled on approximately 200 acres. A little more than 100 of these wells were still producing; the remaining wells had been abandoned.

Milked too hard. — "The cow was miked too hard," Lucas said, "and

GEOLOGICAL MEETING SPEAKERS.—The six men above were guest speakers at the Houston Geological Society meeting held in Beaumont in commemoration of the fiftieth anniversary of the discovery of Spindletop oil field. Left to right: Ira H. Cram, vice president, Continental Oil Co.; Alexander Deussen, Houston geologist; Wallace E. Pratt, retired vice president, Standard Oil Co. (N. J.); John R. Suman, vice president, Jersey Standard; Phil S. Justice, manager, land department, Sun Oil Co.; and R. R. Rieke, sales manager, Schlumberger Well Surveying Corp.

SPINDLETOP VISITORS.—E. DeGolyer, Dallas geologist, and W. E. Wrather, director of the U. S. Geological Survey, talk over old times following ceremonies at the Lucas well site during the fiftieth-anniversary observance of the field's discovery. Right: Top industrialists in attendance at the celebration included, left to right: B. Brewster Jennings, president, Socony-Vacuum Oil Co., Inc.; Walter S. Carpenter, Jr., chairman of the board, E. I. du Pont de Nemours & Co., Inc.; Charles E. Wilson, president, General Motors Corp.; and John W. Newton, vice president and manager, refining division, Magnolia Petroleum Co.

moreover she was not milked intelligently." A dozen wells would have produced more oil, in his opinion, and production then would have been greater than the 10,000 bbl. daily at that time. The pioneer petroleum engineer also observed that "millions of barrels escaped laterally by running off because of wells not being properly cased."

DeGolyer also called attention to the great oil companies and the prominent men emanating from Spindletop. Gulf Oil Corp., The Texas Co., and Houston Oil Co. were mentioned by the geologist. Among the men "for whom Spindletop was a training school or in which they broadened their experience" are Amos L. Beatty, R. L. Blaffer, W. V. Bowles, J. D. Collett, J. S. Cullinan, T. J. Donoghue, W. S. Farish, G. M. Guffey, J. H. Galey, Al and Curt Hamill, George Hamman, Scott Heywood, R. R. Hobson, Governor Hogg, R. A. Josey, F. A. Leovy, J. C. McDowell, C. K. McFaddin, Underwood Nazro, J. Edgar Pew, J. Howard Pew, J. W. Swayne, and Ed Prather.

Other speakers. — Speeches by three of the nation's top business leaders at a dinner attended by 2,800 people climaxed the 6-day anniversary celebration. The three speakers were B. Brewster Jennings, president, Socony-Vacuum Oil Co., New York; Charles E. Wilson, president, General Motors Corp., Detroit; and Walter S. Carpenter, Jr., chairman of the board, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. *(The Oil and Gas Journal, January 11, 1950, pages 53 and 54).*

In his address on "Progress, Productivity, and Wages," Wilson credited the free society of the United States for the "marvelous progress" since Spindletop. He emphasized that labor and management must work together for this progress to continue.

Specifically, the General Motors president pointed to his company's recent 5-year labor agreements as an important contribution to continued progress. He described the cost-of-living formula by which wages are adjusted each 3 months in line with changes in Bureau of Labor Statistics Consumers' Price Index. This system, he said, protects the employe against inflation and to some extent protects the company against deflation.

Great assets.—Wilson ended his address on a note of confidence by saying: "The oil industry of Texas and the automobile industry of Michigan are great assets to our nation in both peace and war. They will both be called upon in the current emergency for maximum effort so that we can defend ourselves and finally achieve world peace while at the same time we preserve our internal economy. Just as these industries successfully met the challenge of World War II, they will meet the current challenge."

During a barbecue for roughnecks and refinery workers, John G. Pew, vice president of Sun Oil Co., and Glenn H. McCarthy, Houston independent, delivered talks. Both emphasized the importance of good employer-employe relations. David Rockefeller, vice president of Chase National Bank, spoke to the Rotary Club on "The Costs of All-Out Mobilization." He described the United States supremacy in oil as "the greatest economic trump card in the struggle against Communist imperialism." "Curbing inflation," Rockefeller said, "is probably the most important, and at the same time the most disagreeable, aspect of mobilization."

Dr. Carl Rister, history - research professor, University of Oklahoma, spoke to the Kiwanis Club on "Fifty Years of Oil Production" as a part of the Spindletop celebration.

Old - timers.—Many old - timers who were active during the boom days of Spindletop were in Beaumont for the festivities. Heading the list were Anthony Lucas, son of the discoverer; Pattillo Higgins, who encouraged Lucas to drill at Spindletop, and Al Hamill, driller of the discovery well.

Miss Inez Lord Awty, Humble Oil & Refining Co. secretary in New Orleans, was honored as the outstanding woman in the oil industry for 1951. The award is in recognition of her work in establishing the Desk & Derrick Club, a national organization for women employed in the oil industry.

Imagination Needed

Cram calls on geologists to use it to find more oil

BEAUMONT.—Geologists were extolled by a leading member of their profession here last week to recommend the drilling of "imaginative wildcats" as a partial solution to the problem of future discovery.

The geologist's imagination followed by the drill can help the industry find oil in areas where present structure-finding tools work poorly or not at all, according to Ira H. Cram, vice president, Continental Oil Co. Cram spoke before a special meeting of the Houston Geological Society which was held in Beaumont as a part of the Spindletop fiftieth anniversary celebration.

The Continental geologist did not claim credit for developing the idea of imaginative wildcats. "Men of imagination and courage drilled imaginative wildcats which found oil before I heard the word geology." However, he said he is asking the geologist to recommend "more and more drilling of unorthodox prospects whether they be in the wide-open spaces or within the shadow of an oil field."

Concepts outlined.—Cram outlined for his audience of 600 the "exploratory concepts" which he believes will be most useful in the finding of oil in the third quarter of the twentieth century. In his words, these concepts are:

"1. The geology of the earth's epidermis as revealed at the surface is not necessarily indicative of the stratigraphy and structure of the deeper beds.

"2. Every important oil or gas accumulation occurs in a trap, be it structural or stratigraphic, in sediments marine or nonmarine of ages ranging from Cambrian to Pleistocene.

"3. We will have not seen all the types of traps that can hold oil.

"4. We are now much less certain than we used to be that we know where the oil isn't.

"5. We have learned that no tool is the answer, that no tool is fool-proof, that each tool has its own place, and that the next great oil field may be detected by a surface geologist rather than an expert using the latest gadget.

"6. We have learned that discovery, although a venture in geology, is also a venture in cooperation.

"7. We understand pretty well the interrelations of men in the production business. The geologist, geophysicist, petroleum engineer, reservoir engineer, land man, driller, production man, are all interdependent and each learns from the other valuable information that enables him to give a better account of himself.

"8. We have learned that conservation is a must."

Optimistic.—As to the future, Cram said: "My crystal ball tells me to be optimistic concerning the future, and judging by the 200-odd million acres under lease in the United States I have plenty of company."

Two other speakers were on the geological society program with Cram, Wallace E. Pratt, retired vice president of the Standard Oil Co. (N. J.), and Alexander Deussen, Houston geologist. Master of ceremonies for the program was John R. Suman, vice president of Jersey Standard. R. R. Rieke, sales manager of Schlumberger Well Surveying Corp. and president of the Houston Geological Society, presided over the meeting. The program was arranged by M. T. Halbouty, Houston geologist.

Pratt discussed in detail the theories regarding salt domes which were prevalent in the two decades following the Spindletop discovery. He said that "Lucas had a definite idea that Spindletop was a salt dome, but 15 years later geologists were refuting this theory."

Deussen, one of the first geology students at the University of Texas, said that there were only five professional geologists in Texas at the time of Spindletop. His discussion was centered on early Gulf Coast oil development, emphasizing Spindletop.

Press Conference

Spindletop speakers air views on oil, U.S. defense

BEAUMONT.—"We shouldn't write off all the Middle East oil in case of war with Russia," B. Brewster Jennings, president of Socony - Vacuum Oil Co., Inc., told a press conference here during the Spindletop celebration. Emphasizing the large size of the area involved, he ventured the opinion that probably only a part of the producing areas would be lost in case of war.

With regards to the domestic situation, the Socony-Vacuum president said that the major problem in the months ahead will be to obtain materials for the drilling of a sufficient number of wells. Also, a considerable amount of plant construction will be necessary to produce aviation gasoline and jet fuels.

Jennings said that there is a "very tight position" at present with regards to tankers. However, he belives that this will be alleviated as the year proceeds. Spring normally relieves the tanker load because of decreased fuel and heat demands. In addition, as the recently completed Trans-Arabian pipe line swings into full operation, tankers will be made available.

In reply to a question, Jennings was reluctant to express an opinion on the number of wells that will be drilled in the United States during 1951. He did express the personal and offhand opinion that "I don't think we'll be able to drill as many wells in 1951 as in the past year."

Auto industry.—At the same press conference, Charles E. Wilson, president of General Motors Corp., said that the automobile industry will have a good year if it produces 6,000,000 vehicles in 1951. This figure is 25 per cent below the 1950 production of 8,000,000 trucks and automobiles. Wilson foresaw no shortage of heavy-duty industrial engines such as are used throughout the oil industry. If necessary, he feels the Government will give oil-field engines a priority because of the importance of the industry to the national defense.

The General Motors executive said emphatically that it will require 2 years for the United States to reach peak war production. He also warned that "we're all going to lose" in this period of inflation. He commented that throughout history politicians have never had the courage to tax a people sufficiently to fully finance a war while it is under way.

H-bomb plant.—Newsmen "baited" Walter S. Carpenter, board chairman of Du Pont with regards to his company's government contract to build the H-bomb plant. He was asked if he cared to comment on the fact that only a short time before being given the contract, Du Pont had been the target of an antimonopoly suit. Although declining to make specific comment, Carpenter asserted that "consistency was never the Government's most conspicuous virtue."

Texas Production

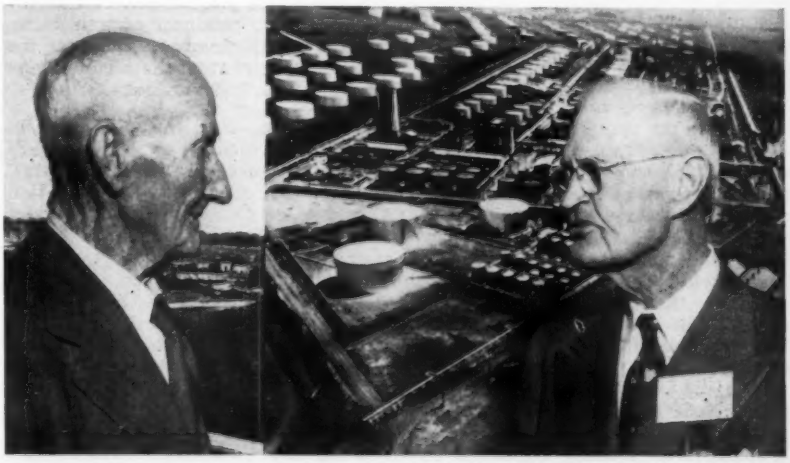
Buyers want 90,959 bbl. daily more in February

Joseph A. Kornfeld

AUSTIN.—On the eve of the regular monthly market-demand hearing of the Texas Railroad Commission, Olin Culberson, commission chairman, reported that crude-oil buyers want 90,959 bbl. more oil daily during February.

Increases for each of the 11 districts in Texas were reflected in the nominations which totaled 2,732,690 bbl. daily, Culberson said. The market-demand hearing was to be held in Houston on January 17.

Crude-oil production for Texas for



OLD TIMERS.—Two of the men most responsible for bringing in the Lucas gusher met in Beaumont during the Spindletop anniversary celebration. Pattillo Higgins, San Antonio, left, interested Lucas in the area, and Al W. Hamill, Tulsa, was driller on the discovery well.

the week of January 6 averaged 2,400,375 bbl., or 5,375 bbl. higher than the Bureau of Mines' January demand figure.

Ernest O. Thompson, commission member, said Texas oil production could be turned up immediately after the hearing if the demand is proved, but said that it will come from fields other than East Texas.

Warning East Texas operators not to expect an increase, the commissioner stated that reservoir behavior of the giant field proves that it cannot efficiently produce more than 275,000 bbl. daily. Currently it operates under an allowable of 273,879 bbl. a day.

Trend reversed.—He said that the commission has been unsuccessful again in halting the drop in bottom-hole pressure in the field due to excessive withdrawals over a period of several months. In December 1950, a reversal in trend in bottom-hole pressures occurred when the average pressure rose 0.99 lb. following a slump of 24 lb. in the past 8 months.

"We felt sure the amount (withdrawals) was too great; but, due to some clamor, we added extra producing days, and the pressure dropped as was expected," he said.

"We have definitely demonstrated," he reiterated, "I hope finally, that about 275,000 bbl. per day is all the oil that can be produced in East Texas, without a drop in reservoir pressure.

"Even at the rate," he explained, "it is necessary to return 429,000 bbl. of salt water to the producing sands. The people of East Texas know now that there is a top limit to their field."

WEST COAST

California Legislation

Efforts to obtain oil, gas-conservation law expected to be made in legislature; raise in gasoline taxes seen

D. H. Stormont

SACRAMENTO.—Two bills of extreme importance to the oil industry in California are expected to be introduced in the state legislature in the near future—a plan to obtain a state oil and gas-conservation law, and a proposal to increase the state gasoline tax from 4½ to 6 cents per gallon.

The big battle is expected to come when efforts to obtain the conservation law are begun, but for once, such a legislative attempt is expected to receive the support of almost the entire California industry—either in form of active support or a passive attitude of merely desiring its enactment. The job will be for its proponents to convince some legislators that such a law is in the best interests of the state and the public.

Twice in the past 20 years attempts have been made to set up oil-conservation laws and regulatory groups similar to those of other oil-producing states. In 1932, with the major companies backing the bill and some strong independents fighting it, the Sharkey bill was passed only to be killed in the referendum that followed. Four years later, with the industry again split, the Atkinson bill was defeated in the legislature.

Independent sponsorship.—This time the fight to secure passage of a conservation law is being sponsored by independent groups. The major companies so far have adopted a hands-off policy, but in recent weeks at least three company heads have publicly stated they believed such conservation statutes were desirable. Thus with one or two notable exceptions, it is thought there will be no fight against the proposed law made from within the industry. Even so, some observers hold that the chances of the bill will not be too good; that if passed by the legislature, it would be killed in a referendum.

Leading independent group has been the Oil Producers Agency of California. Since it started the drive about a year ago it has been joined by the San Joaquin Valley Oil Producers Association and the Independent Producers Association of California. The two producer organizations, numbering 150 members, account for about 55 per cent of the oil produced by California independents.

Tours made.—For the past several months, representatives of the group have been touring California to speak at regional meetings of the State Chamber of Commerce. In this and other ways they have made an intensive effort to secure support for the bill when it is introduced.

They find no fault with the present efforts of the Conservation Committee, other than in being solely voluntary it is insufficient. A state body is needed, they believe; one with legal powers to enforce the conservation statutes, determine proper well spacing, and otherwise protect the rights of individual land owners, operators, and the public.

Just exactly what the proposed conservation laws will consist of, and what legislator will take the lead in guiding it through the law makers, has not been announced. The Oil Producers Agency, however, is to hold a board meeting in Los Angeles this week and is expected to have a statement covering most of these points.

Gasoline tax.—State capital observers anticipate a bill increasing the state gasoline tax from the current 4½ cents to 6 cents will be brought before the group. Such an increase, they feel, will be necessary if California's road-building program is to be speeded up to the rates desired by state officials.

Gov. Earl Warren in presenting a 1951-1952 budget of just over a billion dollars, about $75,000,000 less than actual expenditures during the past year, said the program could be financed without a cent of new taxes. Thus there may be no attempt to increase the oil industry's tax bill to meet general expenditures.

GULF COAST

Tidelands Quandary

Government seeks accord with states, companies

WASHINGTON. — Interior Department officials have been sounding out congressional leaders and oil-company executives regarding tidelands-management legislation that would be acceptable to companies without relinquishment by the Government of the paramount rights given it in three Supreme Court decisions, it was made known this week.

Secretary Oscar L. Chapman discussed the matter with House Speaker Sam Rayburn shortly after the opening of Congress and Mastin G. White, solicitor of the department, conferred last week with attorneys of several companies which hold leases in the Gulf of Mexico.

Chapman is anxious to bring an end to the present stalemate, which permits continuance of production for 60 days under an order he issued December 11, but does not allow new drilling and exploration.

No opposition.—Reportedly, the companies would not oppose a bill under which states would get a share of the income from production both in the 3-mile zone and in the Continental Shelf, but members of Congress will demand that the legislation go much further. In any event, the measure would have to receive the approval of President Truman, and the greatest concession he has so far agreed to would give the coastal states 37½ per cent of the revenue from oil within their boundaries—10½ miles in the case of Texas and 3 miles for the others—the same as the states get

from oil development on public lands.

The department is willing to accept either a temporary or permanent law. Chapman last year asked for temporary legislation to apply until Congress makes up its mind whether to turn the tidelands back to the states by overriding a presidential veto.

Bills introduced.—So far, a half-dozen bills to return the submerged lands to the states have been introduced in Congress, including the bill introduced in the last Congress by Rep. Francis Walter of Pennsylvania which received the approval of the House judiciary committee but was kept from going to the House by the rules committee. It is expected that the Walters bill will again be recommended by the judiciary committee, possibly without hearings.

Proponents of state ownership claim that they now have not only sufficient votes to put the bill through House and Senate, but also enough to pass it over the President's veto.

Under the Walter bill, ownership and management of the tidelands would rest in the states as far seaward as 3 miles, with Texas again getting a 10½-mile limit. Ownership of the Continental Shelf would rest in the federal Government which would control the leasing. However, the States' police powers would extend over that area, including their tax and conservation regulations, and the states would be given 37½ per cent of the income.

NATIONAL AFFAIRS

Materials Shortages

PAD official cites deteriorating situation in obtaining goods for oil industry and warns that it will get worse

Bertram F. Linz

WASHINGTON.—The material and equipment supply situation in the oil industry is steadily deteriorating, and shortages are "selectively" affecting the small operators who do not have big financial backing or pipe supplies of their own on which they can draw for current operations, it was disclosed last week by Deputy Petroleum Administrator Bruce K. Brown.

So serious does Brown deem the situation that he made a detailed formal statement at a news conference, warning that it cannot be expected to improve until definite programs for the equitable distribution of supplies are developed.

In the meantime, he said, PAD will make every effort to help operators to secure needed materials and equipment.

Brown declared the reasons for the present situation which, he said, is "getting progressively worse, rather than better," are two-fold.

"Orders for material required for this country's defense program are being accepted against 'DO' directives by the same companies supplying materials used in petroleum operations," Brown explained. "The rate at which these orders are being placed is increasing steadily. This is the way it should be—all red-blooded Americans are in complete accord with that procedure. Then, there are 'directive programs' such as the freight-car program, Great Lakes-vessels program, Canadian freight-car program, and power and electric-energy program, obtaining their requirements for materials from identically the same base sources of supply. Other 'directive programs' are being planned. These are all readily recognized as petroleum-consuming programs. Each, upon completion, will require from modest to enormous quantities of petroleum. The immediate result of these programs, however, is that the availability of materials for all other uses is being reduced steadily.

Planned effort.—"There is a planned effort being carried forward with determination to maintain a high rate of civilian production among the manufacturing companies which employ large numbers of people. Those in turn consume large quantities of materials now in short supply. This is being done to minimize disruptions and dislocations among the skilled labor of our country—so employment can be opened up in defense plants at about the same rate as it is being cut back elsewhere.

The double impact of maintaining the production of civilian goods at a high level—in instances at 1949 or 1950 rates—and supplying our defense and 'directive programs' requirements has reduced detrimentally the availability of materials required for petroleum operations."

Brown also discussed the steps that may be taken to meet all of the needs outlined.

Two solutions.—"There seem to be two alternate solutions to the problem," he said. "One would be to determine the maximum quantities of materials available for petroleum operations and then to effect distribution of it in the most equitable manner possible. The other would be to determine the extent to which petroleum operations must be conducted to supply our defense program, transportation systems, industries, mechanized farms, and other essential users with their minimum requirements of petroleum and to provide programs that would make the necessary amounts of materials and equipment available for these.

"The latter is, of course, the only sound approach to the problem. It is the one being developed aggressively by PAD, in cooperation with other defense agencies. This office recognizes its responsibility in our country's defense effort to help develop and carry out plans to make petroleum and its products available in sufficient quantities for our defense program and other essential uses. Materials and equipment in sufficient quantities to meet these demands must be supplied for all branches of petroleum operations other than retail marketing. Programs to make these materials available must be developed and supported.

Confusion seen.—"There will be some dislocations—some confusion—while programs are being formalized to make materials available in the quantities required to supply this country's needs for petroleum. During this interim or transition period the services of PAD are available to petroleum operators to help them eliminate 'bottle-necks' or expedite the delivery of materials after operators have exhausted every other means available to them to obtain materials required to meet construction, operating, or production schedules. Besides being patient and tolerant during that period petroleum operators must continue to do what they have so successfully done in other emergencies—use their ingenuity and depend even more extensively than they have heretofore on the cooperation and friendship of their suppliers who are in turn large consumers of petroleum and its products."

Materials Study

Industry group to look into petroleum, gas needs

WASHINGTON.—A new study of the material and chemical needs of the oil and gas industries was initiated last week by Walter S. Hallanan, chairman of the National Petroleum Council.

The survey will be made by a 16-man committee appointed by Hallanan, to be headed by Reese H. Taylor, president, Union Oil Co. of California. Each of the 15 members of Taylor's group will be chairman of a subcommittee dealing with a specific division of the industry.

Hallanan urged the committee to

WATCHING WASHINGTON

Bertram F. Linz

Controls Situation

A proposal for an immediate temporary "freeze" of all prices was turned down by the Economic Stabilization Agency last week on the ground it would merely preserve all the price inequities now existing and be impossible of administration, but general price control, nevertheless, appears definitely slated for imposition as soon as a plan for an accompanying wage control can be developed and an adequate staff for administration recruited.

Price control and rationing was the biggest civilian job handled by the Government in the last war. It took a year for the Office of Price Administration to get ready for issuance of its first general maximum-price regulation and at the height of its activities it took a veritable army for administration—about 60,000 paid employes and a still greater number of volunteers.

Price controls alone, of course, will not require such a tremendous staff, but ESA officials are represented as believing that rationing, too, will have to be imposed, probably on a highly selective basis at first, as defense production cuts more and more deeply into civilian material supplies.

In contrast with the OPA, the Economic Stabilization Agency is only 3 months old and has but 325 employes. The necessary space for expansion is now being made available, however, and the staff will grow rapidly in coming weeks, with a possibility that it will be prepared to take on the job of policing prices early in the spring.

Meanwhile, the ESA wage-stabilization board is studying the problem of wage control. It met with representatives of labor and industry last week and was told flatly by the labor men that they would oppose wage controls until complete price control could be had, a matter that would require action by Congress.

NPC Status

Status of the National Petroleum Council in the defense setup appears still to be highly uncertain, with the pressure for its treatment as merely an industry advisory committee seemingly withstanding all efforts of Secretary Oscar L. Chapman and Deputy Administrator Bruce K. Brown to have it considered a purely nongovernmental entity as was the Petroleum Industry War Council in World War II.

Under the Defense Production Act, the emergency agencies are required to consult with industries in the preparation of actions affecting them. The Department of Justice has taken the position, which is supported by rules just issued by the National Production Authority, that industry advisory committees through which such consultation is carried on, must have a full-time government official as chairman. The chairmanship of the NPC is the major issue involved in negotiations between PAD and the Justice Department.

It is contended that the NPC differs from the industry advisory committees contemplated in the act in that it does not make recommendations to PAD involving the determination of policies or the administration of programs, but it is primarily a fact-finding agency. It was on this basis that the formation of the council was approved in May 1946, by former Atty. Gen. Tom C. Clark.

U. S. Rubber Crop

Caught short 8 years ago when the Japanese cut off our supplies of rubber, the Government now isn't taking any chances of a repetition of the tight situation which then arose. In addition to boosting synthetic production to the top capacity of existing plants, a new effort to grow our own is under way.

"Our own" is nothing else but that old denizen of the desert, the guayule plant. After the Japanese invasion of the Far East rubber areas, the Government had 32,000 acres of it planted in the Salinas Valley of California and spent more than $45,000,000 in the effort to build a domestic natural-rubber industry. The first harvest, in 1944, didn't contribute much to the rubber supply, but what was secured was important for several purposes, particularly in heavy-duty military-truck tires.

The only difference between the hevea tree of the Netherlands East Indies and Malaya and the guayule is that the latter has a higher resin content. Mixed with resinless synthetic, however, guayule can match the best natural rubber.

Since the end of the war, the Department of Agriculture has been working to improve on nature's handiwork and its scientists have come up with new hybrid strains which are expected to yield a third more rubber than the best varieties grown during the war.

make its study as quickly as possible and submit its report promptly together with such recommendations as may be appropriate with respect to materials and chemicals required to maintain an adequate supply of oil and gas to meet the country's essential needs.

The study was requested by Hugh A. Stewart, director of the Oil and Gas Division, who pointed out that in addition to steel there are many materials and chemicals used by the industry that are or may be in short supply, among them copper, aluminum, zinc, cobalt, nickel, and sulfur

Munitions Board Changes

WASHINGTON.—A reorganization of the Munitions Board designed to provide a stronger organization and bring in high-calibre businessmen as members of the staff was announced last week.

The reorganization was the result of sharp criticism of the board by the Senate preparedness subcommittee, particularly with respect to its handling of the lagging stockpiling program and its failure to take effective steps to halt the disposal of surplus war plants even after it became apparent last summer they might again be urgently needed.

Under the new setup the board will have four divisions to deal, respectively, with production management, requirements management, stockpile management, and supply management. The heads of the principal divisions will report directly to the chairman instead of going through a staff director as formerly.

Container Squeeze

Makers' plight will be studied by task group

WASHINGTON.—Steel and container manufacturers told National Production Authority officials last week that some container manufacturers already have been forced to reduce operations and some smaller plants may be forced to shut down entirely because of lack of steel.

As a result of discussions with an industry advisory committee, NPA appointed a task group to study the problem and indicated that an end-use limitation order may be necessary to assure that defense and essential civilian needs are met.

The primary users of steel shipping containers are the petroleum, chemical, and food industries, all of which have complained of increasing restrictions on supplies.

Order digest.—Following is a digest of orders issued by NPA so far this month (a list of all orders issued in 1950 appeared in *The Oil and Gas Journal, January 11, 1951, page 45*):

Order M-20, January 4: Governing inventories of iron and steel scrap held by dealers, brokers and others.

Amendment 2 to Order M-8, January 9: Increasing the quantity of secondary tin-bearing materials permitted to be put into process by smelters and refiners.

Amended Notice-1, January 10: Adding items to the list of materials subject to the antihoarding provisions of the Defense Production Act, including industrial ethyl alcohol, chlorine, and rubber.

Order M-21, January 11: Restricting the use of methylene chloride.

Amendment 3 to Reg. 2, January 11: Authorizing the use of DO ratings carried by defense orders to procure accessories for production equipment for companies working on rated orders.

Order M-22, January 12: Restricting inventories and consumption of aluminum scrap.

Order M-23, January 12: Providing for the equitable distribution of defense orders among producers of cotton yarn.

Amendment to Order M-18, January 12: Governing the use, inventories and distribution of hog bristles and bristle products, including paint brushes.

Steel Exports

U. S. policies on line-pipe, tubular-goods shipment have not changed since World War II, I.P.A.A. counsel told

WASHINGTON.—Commerce Department policies with respect to export of line pipe and tubular goods for oil development abroad have not changed since wartime days, it is indicated by Thomas C. Blaisdell, Jr., assistant secretary of commerce who left government service January 15.

Blaisdell explained the department's position in a letter responding to an inquiry by Russell B. Brown, general counsel of the Independent Petroleum Association of America, as to the reasons which prompted the department to issue export licenses for big-inch pipe for the Iraq pipe line from the Kirkuk fields to the Mediterranean.

Pointing out that the line was planned several years ago but had to be deferred because production of large-diameter pipe is limited and other lines, both domestic and the Trans-Arabian, had prior claims, Blaisdell said that early last year the single producer, Consolidated Western Steel Co. of Los Angeles, had caught up with demand to the point where it could start on the Iraq Petroleum Co. order without delaying delivery of any domestic requirements.

No shortages.—Because of this and the fact that all military requirements for steel plate on the Pacific Coast are being met and there is no shortage of plate for essential civilian supply, and the further fact that the line will make more oil available to the Atlantic Pact nations than could be obtained by use of the same amount of steel "in any other area of the world," export licenses for the third and fourth quarters of 1950 were issued and, Blaisdell said, "we believe that the export of pipe for the construction of this line will not tend to reduce the availability of 'oil-country goods' or other steel pipe for the domestic petroleum industry."

Blaisdell pointed out that the department confers with all other interested government agencies in dealing with the licensing of steel pipe and other short-supply items through a committee which "gives serious consideration to domestic requirements and the effect that exports may have upon the domestic economy including, of course, the domestic petroleum industry."

Discussions "futile."—"Discussions at this time of the degree to which this country is self-sufficient in its petroleum resources appear to me to be futile," Blaisdell declared. "In any future emergency as in the last war numerous foreign-petroleum operations, both those of United States ownership and those controlled by British and Dutch interests, will undoubtedly be of high strategic significance. Even in peacetime, the United States Navy depends on overseas operations for considerable supplies of petroleum products and there is also, as you undoubtedly are aware, a considerable movement of crude petroleum from foreign producing areas to this country. Moreover, the plans for continued recovery in the ERP countries are based, to a considerable extent, on a greater availability of petroleum in those countries. In addition to the foregoing considerations, which I am sure you will agree are serious ones, there is the question of the support of the petroleum operations of both U. S. and foreign ownership within the borders of our 'Good Neighbors,' the Latin American countries such as Mexico, Venezuela, Colombia, Chile, and others.

"A great deal of the pipe and other steel for world-petroleum operations outside the United States is obtained from Europe and some is supplied from local industry, as in Mexico and in Chile. For some quantity of these products, however, foreign petroleum operations must rely on U. S. sources of supply either because of the inadequacy of the supply available from foreign industry or because of the unique quality or design of U. S. products in this line in which this country so greatly excels.

Many problems.—"The problems arising therefore in the limitation of exports of the steel products with which your letter is concerned are many and involved. I can assure you, however, that the requirements of the domestic petroleum as well as all other domestic industry are receiving serious and continued study and that all determinations with respect to exports are made in the light of these studies."

NPC Meeting Set

WASHINGTON.—The first 1951 meeting of the National Petroleum Council will be held in Washington January 30.

Call for the meeting was sent out last week by Chairman Walter S. Hallanan following a decision by Interior Secretary Oscar L. Chapman to extend the term of the 1950 members of the council for an indeterminate period.

Chapman's decision, which will permit council committees, engaged in important studies, to remain active, was the result of inability to make a quick determination of the status and membership of the 1951 council.

It is expected that several weeks more will be required to decide the status of the council with respect to regulations which would appear to make it merely another of the many industry-advisory committees which have been set up by the National Production Authority and other defense agencies. The actual membership of the new council is understood to have been pretty well worked out.

Gas Agency Urged

PAD pressed for separate control setup by A.G.A.

WASHINGTON.—Representatives of the American Gas Association met with Petroleum Administrator Oscar L. Chapman last week to urge again the establishment of a separate defense agency for the gas industry.

The group, which pressed the same setup on Chapman last September, made it clear that they lacked confidence that the material needs of the gas industry, particularly for long-distance pipe lines, would be handled to their satisfaction by PAD, an agency which will be staffed largely with oil men.

Chapman took the proposal under advisement, but made it clear that he was reluctant to set up any more defense agencies although he indicated he would be receptive to a recom-

mendation to set up a separate advisory committee for the gas industry on transportation and distribution.

No divorcement.—The proposal for a separate agency would cover only transportation and distribution, since there has never been any idea of divorcing natural-gas production from oil production.

In the last war, PAW handled the problems of gas production but the materials requirements of transporters and distributors were combined with those of the power industry in the Office of War Utilities. No OWU has been set up so far, and Chapman is represented as believing that oil and gas should be treated as a team.

Indicating a belief that the association's appeal will be denied, PAD is preparing to bring in several experts to handle questions of materials for the gas industry and programming of operations.

Budget Report

U. S. to spend 7.6 billion during fiscal year on defense, domestic programs; oil, gas agency appropriations set

Bertram F. Linz

WASHINGTON.—President Truman told Congress this week that the Government will spend $71,600,000,000 during the fiscal year which begins next July 1 but that present and contemplated programs will call for appropriations and authorizations of $94,400,000,000.

Against the $71,600,000,000 to be spent, he said in his annual budget message, the Government will have tax and other receipts of $55,100,000,000, leaving a deficit of $16,500,000,000 which it is proposed to cover by increased corporation, individual, and excise taxes.

Throughout the 1952 budget the emphasis was on defense—increased appropriations to build up our military strength and that of the other democratic nations, to expand productive capacity and to concentrate needed capacity on defense production—but there was no easing off of spending for such things as education, general research, social security, welfare, or health.

Estimates given.—The President gave Congress his first estimate for administering the defense program, $1,568,000,000 of which $1,200,000,000 would be for expansion of production. The cost of administering allocations and price, wage, rent, and export controls was put at $330,000,000.

In contrast with recent past years, the Treasury estimates of tax and other receipts gave no figure for the revenue from the taxes on gasoline and lubricating oils for either of the fiscal years 1951 or 1952. These and all other manufacturers' excise taxes were lumped in one general figure because of the necessity of making arbitrary assumptions regarding the amount and timing of material shortages as they affect the production of specific taxable commodities.

There was no breakdown of the estimated cost of operating the various emergency agencies such as the Petroleum Administration for Defense and the National Production Authority, nor were any estimates given for regular agencies which have been transferred to the defense offices such as the Oil and Gas Division of the Interior Department.

The fund for enforcement of the Connally Hot Oil Act is cut from the $180,000 allowed for the current fiscal year to $174,000 for 1952.

The Bureau of Land Management, under the budget, would be given an increase of some $58,000 to a total of $942,500 for handling the leasing and disposal of lands and mineral resources. This increase, it was explained, is designed to reduce the backlog of applications, "thereby increasing the revenue to the federal Government and opening new lands for exploration and development."

Receipts to increase.—It is expected that during the 1952 year the number of applications filed and reopened will approximate 48,000 against 46,000 this year, 56,700 cases will be completed against 50,220 and the backlog of cases at the end of the year will be reduced to 26,843 and 39,763 last June 30. As a result of speeded-up activity, it is estimated that Treasury receipts from this source will increase from an actual $30,275,000 last year and an estimated $32,500,000 this year to $34,250,000 in 1952.

The bureau is also to receive 634,900 for land classification, against $575,000 for the current year.

An increase of more than $3,500,000 is proposed for the Geological Survey, for which $22,900,000 is provided against the present $19,382,000. The 1952 funds would include $8,930,000 for topographic surveys and mapping as against an estimated $7,500,000 this year, and $6,130,000 for geological and mineral resource surveys and mapping against $4,420,000. The fund for supervision of mining and oil and gas leases would be increased to $910,000 from the present $850,000; royalties from the supervised properties, it was shown, now amount to $35,000,000 a year.

Bureau of Mines.—In the Bureau of Mines estimates a $306,000 cutback is made in the fund for synthetic liquid-fuels development, for which $7,809,000 is to be provided against $8,115,180 this year, but the money for its petroleum and natural-gas activities is to be increased from $1,111,597 to $1,256,000. This fund includes engineering research on problems connected with the development and production of oil and natural gas.

Synthetic rubber.—The Reconstruction Finance Corp., which showed a net loss of $7,712,777 on its synthetic-rubber operations in 1950, is expected to have a net income of $10,839,000 this year and $5,484,000 in 1952. The budget anticipates that sales of synthetic rubber this year will amount to $328,690,000, against $156,006,135 during the year ended last June 30, and will increase to $450,350,000 in the fiscal year 1952. The actual cost of synthetic sold was $145,939,875 in 1950 and is estimated at $264,230,000 for this year and $385,050,000 for 1952. It was indicated that there will be a further expansion of production using alcohol as a feedstock and since such rubber is more expensive than that produced from petroleum provision has been made for the price increase to prevent a substantial loss to the Government.

Among other agencies whose activities are of some interest to the oil and gas industries, the National Security Resources Board is scheduled to get a $500,000 increase to $4,000,000, the Federal Power Commission is to get $1,434,000 for regulation and surveys of the natural-gas industry against $1,392,938 this year, the Federal Trade Commission is to get $3,892,000, the same as this year, the Interstate Commerce Commission is allotted $512,143 for its valuation of railroads and pipe lines against $480,905, and the antitrust division of the Department of Commerce is given $3,700,000, a cut of $50,000 from this year.

Tanker-Plan Hearings Set

WASHINGTON. — Public hearings have been scheduled for this week on the proposed voluntary plan to make tanker capacity available to the Navy, after which the program will be submitted to the Department of Justice for approval.

A tanker - requirements committee to administer the program was appointed January 15 by Vice Admiral E. L. Cochrane, head of the Maritime Administration, to consist of William F. Dunning, formerly of Standard Vacuum Oil Co. and now special assistant to the maritime administrator, as chairman, and Frederick Pratt, Socony-Vacuum Oil Co., Inc.; Munger T. Ball, Sabine Transportation Co., Inc.; A. E. Kihn, Standard Oil Co. of California; F. Willard Bergen, Marine Transport Lines, Inc.; Charles

Kurz, Keystone Shipping Co.; and J. J. Coney, Hillcome Steamship Co., Ltd.

Increased Imports Urged

WASHINGTON.—Increased imports of foreign oil were called for last week in the annual report to President Truman of the Council of Economic Advisers.

"The prospect of a rapid buildup in national defense during the next few years, followed by an indefinitely long period during which we must maintain and improve our defenses, emphasizes sharply the need for maximizing the productive capacity of our natural resources," the council declared.

"Discoveries of new petroleum reserves have been keeping pace with increased production during recent years, but we cannot expect this to continue indefinitely," the report said. "Prudence requires that we encourage imports of petroleum and petroleum products, especially from nearby sources, while at the same time giving our full assistance to the development of foreign oil fields to supply friendly nations as well as ourselves. In addition, processes for the production of synthetic liquid fuels from oil shale and coal are rapidly approaching the point where they can be developed privately."

Imports Quotas Estimated

WASHINGTON.—The Treasury Department tentatively estimated this week that the amount of crude and fuel oil permitted to be imported at the reduced excise-tax rate under the Venezuelan Reciprocal Trade Agreement this year would be 627,600,000 bbl.

Under the quota the allocation for Venezuela would be 372,438,000 bbl., for the Netherlands, including the Netherland West Indies, 117,249,000 bbl., and for all other countries 137,313,000 bbl.

The department's estimate was based on Bureau of Mines preliminary figures on the quantity of crude processed by refineries in the continental United States last year. It is subject to revision upon the development of final refinery figures.

ECONOMICS

Imports Drop

Decrease of 19,000 bbl. daily noted in November

IMPORTS of crude and petroleum products in November averaged 867,000 bbl. daily, a decrease of 19,000 bbl. daily from October but an increase of 145,000 bbl. daily over November 1949, according to data of the Department of Commerce. Compared with November 1949, this represents a gain of 20 per cent.

Crude imports averaged 442,000 bbl. daily compared with 500,000 bbl. daily for October and 457,000 bbl. daily for November of the previous year. This was the first month since February for which crude imports in 1950 were less than in the same month of 1949. Crude from Mexico, Colombia, and Venezuela represented a decrease of 43,000 bbl. daily while the drop in imports from the Middle East was 15,000 bbl. daily.

Resid.—Imports of residual fuel set a new record for the year with 11,778,000 bbl., or 393,000 bbl. daily compared with the previous high of 374,000 bbl. daily in March.

Exports, excluding shipments to territories, averaged 291,000 bbl. daily, only a slight decrease from the year's record set in October. Crude exports returned to a more normal level, and gasoline shipments declined seasonally. The only important gains for the month were for residual fuels and lube oils.

IMPORTS INTO CONTINENTAL UNITED STATES
(Thousands of barrels)

	Nov. 1950	Oct. 1950	Nov. 1949
Crude—			
Mexico	830	1,017	459
Colombia	1,322	1,130	1,328
Venezuela	8,198	9,876	8,193
Kuwait	2,276	1,974	3,002
Saudi Arabia	641	1,499	627
Other	2	....	89
Total crude	13,269	15,496	13,698
Daily average	442	500	457
Products—			
Residual fuel	11,778	10,631	7,218
Other products	957	1,333	736
Total products	12,735	11,964	7,954
Daily average	425	386	265
Total all oils	26,004	27,460	21,652
Daily average	867	886	722

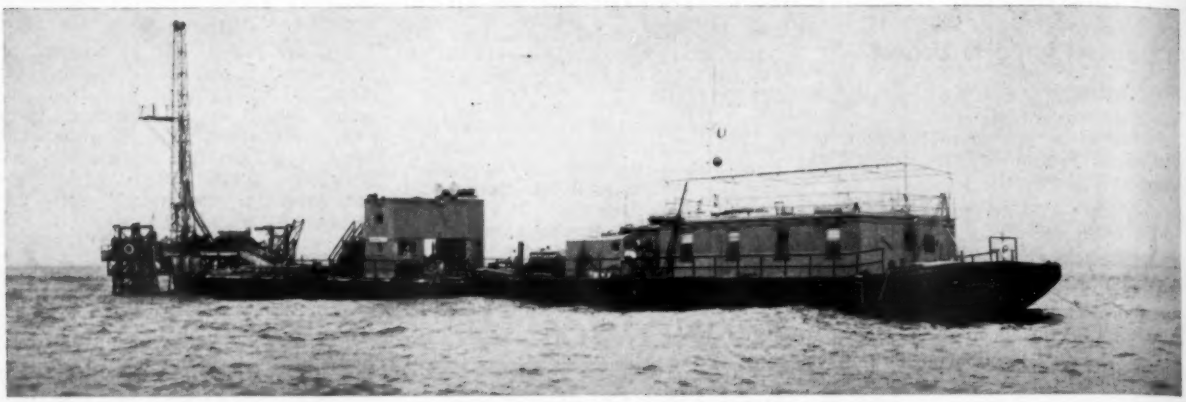
EXPORTS*
(Thousands of barrels)

	Nov. 1950	Oct. 1950	Nov. 1949
Crude	3,229	4,033	3,010
Gasoline	1,476	1,814	1,804
Distillate	901	1,108	666
Residual	1,071	632	852
Lube oils	1,222	1,022	756
Other products	826	949	520
Total all oils	8,725	9,539	7,608
Daily average	291	308	254

*Excludes shipments to territories.

Scurry Gasoline-Plant Construction

Work is being speeded up on the Kelly-Snyder gasoline plant in West Texas, and if favorable weather continues the next 60 days should see the completion of most facilities. The cooperative project is being constructed by 30 corporations and 60 individuals to gather and process casing-head gas for production of propane, butane, isobutane, natural gasoline, and residue gas. The plant will be operated by Sunray Oil Corp.'s gas-gasoline division, and will process 70,000,000 cu. ft. of casing-head gas daily, producing a total of 547,000 gal. of products daily.



This two-barge unit is used by Aramco for structure drilling in the Persian Gulf. The 60-ft. drilling unit is seen at the end of the vessels.

MIDDLE EAST

Offshore Test Planned

Aramco will drill well in 19 ft. of water 3 miles from shore, utilizing platform supplemented by four barges

Dahl M. Duff

THE first full-fledged offshore drilling venture in the Persian Gulf is scheduled to be commenced in the near future by Arabian American Oil Co.

The well is to be drilled in 19 ft. of water at a location about 3 miles from shore and about 20 miles south of Ras el Misha'ab. A platform supplemented by four barges will be used.

Ras el Misha'ab is a point on the Persian Gulf shore a short distance south of Saudi Arabia's boundary with the Neutral Zone. It was here that Trans-Arabian Pipe Line Co. constructed the skyhook and other facilities for the unloading of supplies for the Tapline.

Preparations for drilling the offshore test follows 2 years of marine-structure drill and seismograph work. Indications pointing to possible offshore structures were found in 1938 by an Aramco land seismograph crew and again during the 1947-48 field season by a gravity-meter party.

Drill work.—In the structure-drill work in the submerged areas, Aramco has used a self-propelled barge with the rig suspended at the end. Two 40-ft. U-shaped long legs are lowered to the bottom to provide a firm base for the drilling. Ballast tanks in conjunction with the tide are used to lift the legs for the move to the next location.

For the drilling of the well itself, 125 steel H-beams, each 14-in. wide and 90 ft. long, were shipped from the United States. These were sunk by a pile driver through 15 ft. of mud and into 5 ft. of hard rock.

Of the four barges which will be used with the operation, one will carry 650 tons of drilling mud and another will be used for cement. A utility barge will carry fuel oil, fresh water, and miscellaneous supplies. The fourth barge will haul any oil that may be found in testing the well. Four launches and three tugs also will be used.

The structure on which Aramco is drilling has been named Safaniya after a nearby coastal headland. The platform construction has been completed, and the well, Safaniya 1, was to be spudded in this week.

A National 100 rig will be used for the operation. The skyhook at Ras el Misha'ab is no longer functioning, but the camp, sea island, and small-boat pier at this location will be used in connection with the drilling.

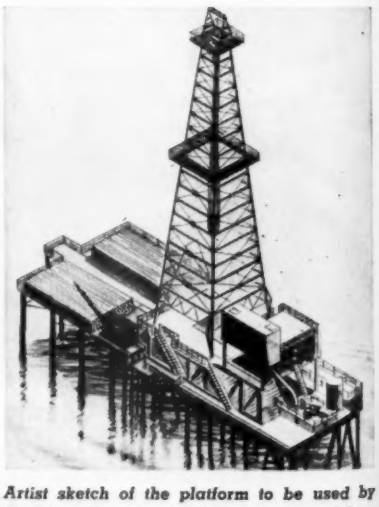
Local materials used.—The platform was designed and built by Aramco engineers, using materials on hand locally with the exception of most of the H-beam piling. There are no particular innovations in its design. It is built to withstand winds of up to 60 m.p.h., a requirement lower than that imposed in the Gulf Coast area with its possibilities of hurricanes.

Over-all dimensions of the platform are 55 by 143 ft. The pipe area is 55 by 60 ft., with the main deck measuring 44 by 83 ft. The 30 by 110-ft. cargo barges to be used in the drilling have been employed in other phases of the company's operations.

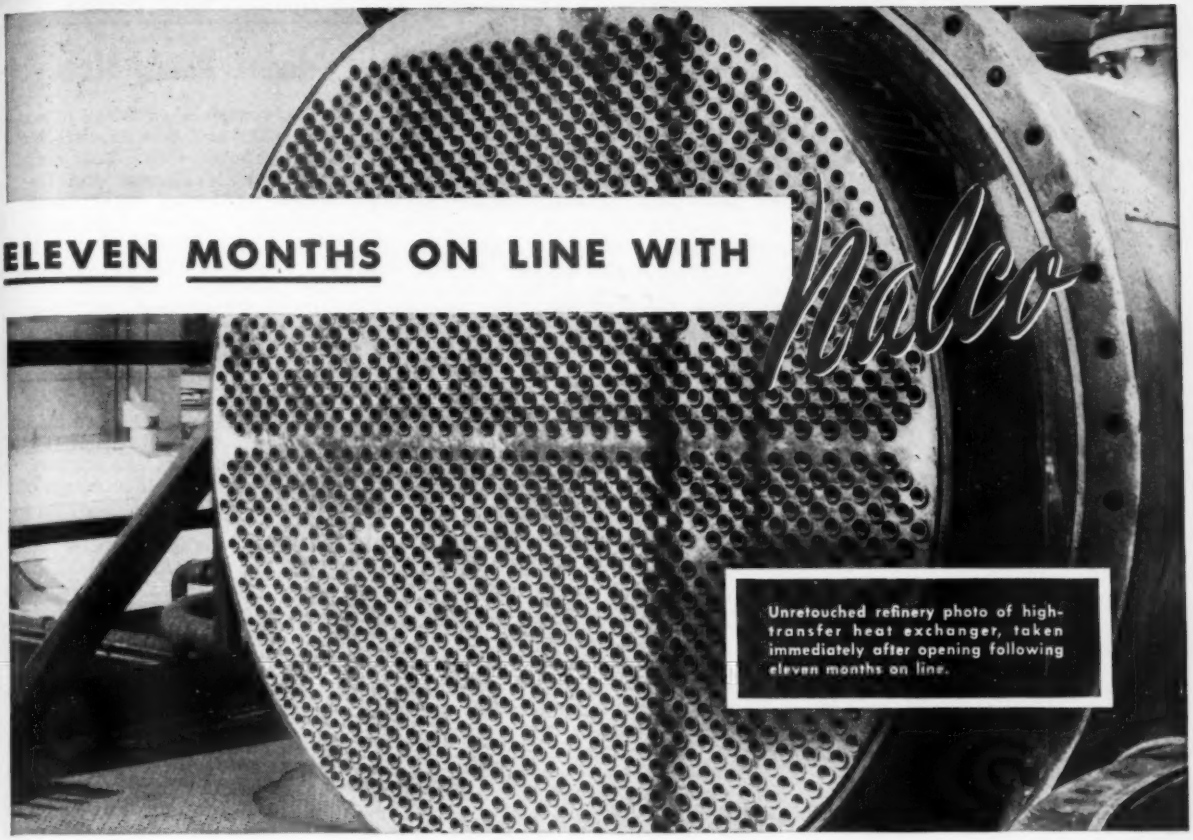
Some 12 offshore-structure drill holes were drilled by the company in the area of the Safaniya structure. One of these obtained some heavy oil at about 1,000 ft. This had no gas and barely flowed to the surface. The limestone formations from which Aramco obtains its onshore production probably will be found at greater depth since the formations dip to the north and east.

Seismic work.—The seismograph work which the company has had under way in the marine area of its concession has been carried out under contract by Geophysical Service, Inc. Like the platform, the base for structure-drill rig was designed and made by the company personnel.

Safaniya 1 is the first drilling to be carried out under the waters of the Persian Gulf. Looking forward to operations of this kind, the exact extent of the underwater boundaries has



Artist sketch of the platform to be used by Arabian American Oil Co. in its offshore drilling well.



Unretouched refinery photo of high-transfer heat exchanger, taken immediately after opening following eleven months on line.

...and clean as the day it started!

This heat exchanger was labeled the most troublesome unit in the refinery from a standpoint of scaling and corrosion before the Nalco No. 33 Method of recirculating cooling water treatment was put in operation. Now, routine inspections show tubes that are always so clean that no cleaning or tube replacements due to water side scaling or corrosion have been necessary during three years of Nalco System use!

Check the features of the Nalco No. 33 Method at right and translate its advantages into time, materials and equipment savings for your own cooling water recirculating system. Full details on request.

NATIONAL ALUMINATE CORPORATION
6242 West 66th Place **Chicago 38, Illinois**

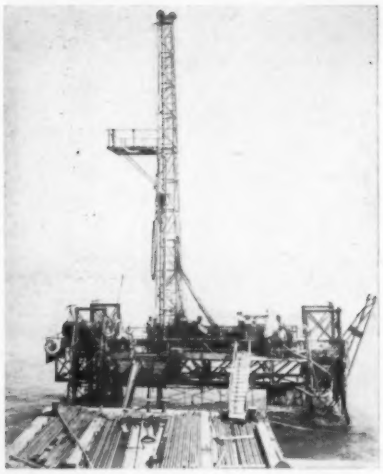
Canadian inquiries should be addressed to Alchem, Limited, Burlington, Ontario

Nalco

LOW pH METHOD OF RECIRCULATING COOLING WATER TREATMENT

- Provides *complete* recirculating system protection from scaling and corrosion.
- Maintenance of pH between 6.0 and 6.5 prevents scaling, stops delignification of cooling tower lumber, and cuts chemical requirements for slime and algae control as much as 50%.
- Use of Nalco No. 33 builds microscopic, impervious protective film on pipelines and equipment to positively prevent corrosion.
- Non-toxic Nalco No. 33 makes use safe; eliminates contamination problems.
- Silica concentrations in recirculating water may be allowed to run much higher without danger of SiO_2 depositions.

THE *Nalco* SYSTEM • **Serving the Petroleum Industry through Practical Applied Science**



This view shows the structure drill equipment which is placed on two U-shaped legs lowered to the bottom.

been and still is the subject of negotiation among the governments bordering the Persian Gulf.

Outside the extensive drilling in Lake Maracaibo in Venezuela, offshore drilling in foreign areas has also been done in Cuba, on the North Sea coast of Germany, and by the Russians in the Caspian Sea.

As far as Aramco's land operations are concerned, the company since beginning work in 1936 has drilled on a total of 10 structures. No production was obtained in three of these. Oil was found in all the remaining seven.

NEW ZEALAND

Exploratory Effort

Government sponsors new oil-production attempt

EFFORTS to find oil production of importance are being renewed in New Zealand under government sponsorship.

Two geologists from Anglo-Iranian Oil Co., Ltd., in London are assisting in the program. In Wellington, Keith Holyoake, deputy prime minister, said the survey now under way would provide a basis for a decision whether an accelerated program of oil exploration will be undertaken. The government is interested in the project particularly as a defense measure.

Anglo-Iranian as well as other British and American interests discontinued exploration activities in New Zealand in 1944 after disappointing results. Between 1938 and 1944, according to a New Zealand Government publication earlier this year, 13 unsuccessful deep tests were drilled on geological and geophysical prospects. Total footage was 73,565 ft., with one well going to 10,925 ft.

Small production.—Production on a small scale from an area near New Plymouth continued, averaging less than 10 bbl. daily in 1947 from three wells. However, early this year, a new and much better well was brought in in this area on the west side of North Island. It was drilled by local New Zealand interests, the New Zealand Oil Refinery, Ltd., using rotary equipment and a 130-ft. derrick. The test initially was reported to have flowed at a rate of about 25 bbl. daily after having been drilled to 2,226 ft.

Records of the earlier drilling in the area were used by backers of the well, F. J. Dobson, managing director of the refining company, and his two brothers, in their work in the area. This operation has encouraged renewed interest in the possibilities of developing more sizable production in the dominion.

EUROPE

Relief Well Being Drilled

Drilling of a directional hole which will be used to kill a burning well in the Cortemaggiore gas-distillate field in northern Italy is expected to be completed probably in early February.

The well is No. 21 in the eastern part of the field which blew out and caught fire December 1. Operations are conducted by Azienda Generale Petrolera Italiana, the Italian state oil organization.

The directional hole is being drilled from a point about 600 ft. from the burning well. Edward Perry Kyle, of Houston Oilfield Materials Co., is assisting with the directional drilling. The burning well is estimated to be flowing about 17,000,000 cu. ft. daily, along with some oil.

AFRICA

Egyptian Exploration

Outlook for resumption of activities discouraging

THE outlook for resumption of exploratory activities by foreign oil companies in Egypt continues discouraging.

According to reports from Cairo, a committee representing the Ministry of Commerce and Industry has completed draft of amendments to the 1948 mining law, and these are being studied by high government officials prior to submission to parliament.

However, it is understood the Egyptians have shown no disposition to take action to provide a satisfactory price for products sold in the country. Since the crude is all refined in the country, there is no incentive for further exploration in view of the artifically depressed, controlled levels of prices.

Amendments.—Both the price question and the amendment to the mining law have been at issue between the companies, namely Shell and Socony-Vacuum Oil Co., Inc., and the government. The amendments would make the law workable, though they do not represent all the changes the companies sought.

At present, the companies are confining their operations to production from existing and confirmed leases. Unless administrative action is taken to place prices in line with those on the world market, there is little chance for a resumption of exploration, even though the amendments to the law are passed. Reserves in Egypt's present fields are limited, and it has been pointed out that imported oil supplies which will be necessary in increasing quantity in the absence of new exploration, must be brought in at prevailing world prices.

More Exploration Urged

The French Government has been urged by the Council of the Republic to intensify oil-exploration activities in French Equatorial Africa.

The council recommended specifically that credits be maintained under the African 5-year equipment plan to continue the exploration program in Equatorial Africa. It also said the operating company, Soc. des Petroles de l'A.E.F., should be added to the list of companies which may receive assistance under the economic-cooperation agreement of June 28, 1948, between France and the United States.

If state credits were insufficient to provide a broadened program, then the company should be authorized to call for private funds on the condition that French interests were maintained, the council said.

The Council of the Republic is the upper branch of the French Parliament and is vested with advisory but not legislative powers.

Index Ready Now

The complete editorial index of The Oil and Gas Journal for 1950 is now ready. The complete index, enlarged and improved and with more cross-references, bound separately, will be sent without charge to all subscribers requesting a copy. Address requests to Circulation Department, P.O. Box 1260, Tulsa.

Producers
Refiners
Marketers

of petroleum products

Be sure with Pure

THE PURE OIL COMPANY

Marketing Offices in Principal Cities of the Eastern, Central and Southern States

General Offices, Chicago, Illinois

25-Year Veteran

Favrot heads Pipe Line Contractors Association

LAURENCE H. FAVROT, president of Houston Contracting Co., and newly elected president of the Pipe Line Contractors Association, recently completed his twenty-fifth year in pipe lining.

He was born in Leesville, La., on November 23, 1900, and in 1924 received a B.A. degree with a certificate in business administration from University of Michigan. On graduation he joined the firm of Ford, Bacon & Davis as junior engineer and accountant. The following year he joined Williams Brothers at Tulsa as timekeeper, and later was promoted to superintendent.

In 1931 he joined Apex Construction Co. of Houston as president, and 5 years later headed Latex Construction Co. of Houston. He remained with this company, as president, with the exception of the period during World War II when the firm was dormant. Today he is head of Houston Contracting Co., successor organization to Latex.

During World War II, he served with the U. S. Army Corps of Engineers from October 1942 to May 1945 in North Africa, and on the India-Burma-China pipe line.

Eugene Simon, manager of the New Orleans district for Gulf Refining Co., has been elected chairman of the Louisiana Petroleum Industries Committee for 1951, succeeding **E. J. Dorgan,** of Pan-Am Southern Corp. **D. C. Stevenson,** district manager for Shell Oil Co., has been elected vice chairman of the committee.

A. W. Thompson, Houston; **Jake L. Hamon,** Dallas; both independent oil men, and **D. A. Hulcy,** president of Lone Star Producing Co., Dallas, have been appointed by the National Petroleum Council to study the needs of the oil and gas industries for materials and chemicals.

W. E. Alexander, of Monsanto Chemical Co., Texas City, Tex., has been elected chairman of the South Texas section of the American Institute of Chemical Engineers. Other officers elected include: **C. L. Dickinson,** Diamond Alkali Co., Houston, chairman-elect; **Henry D. Foster,** E. I. du Pont de Nemours Co., Laporte, secretary; and **William W. McLean,** Carbide & Carbon Co., Texas City, treasurer.

Ralph Cantrell, consulting geologist, Houston, has been elected vice president of the Houston Geological Society, replacing **Frank Reedy,** who resigned.

O. H. Moore, formerly superintendent of compressor stations for Tennessee Gas Transmission Co., Houston, has been named to the newly created position of director of engineering research. **R. V. Mertz,** process engineer, will replace Moore; **T. K. Davis,** chief dispatcher, will replace Mertz; and **B. M. Rogers,** assistant chief dispatcher, will replace Davis.

H. A. Rankin, formerly with Stanolind Oil & Gas Co., has joined Houston Oil Co. as assistant chief petroleum engineer. **Cliff Barber,** formerly with Union Oil Co. of California, has joined the firm as staff geologist; and **Homer B. Williams,** formerly with Sun Oil Co., Dallas, has joined the firm as tax commissioner.

Jack Wilson, scout for Amerada Petroleum Corp., Jackson, Miss., has been elected president of the Mississippi Oil Scouts Association. Other new officers include: **Paxton Robertson,** Sun Oil Co., vice president; **L. C. Farrington,** Ohio Oil Co., secretary; **H. LeRoy Francis,** Carter Oil Co., treasurer; and **Ray Stevens,** Shell Oil Co., editor.

Don Agnew, director of the New Orleans office of the Oil Industry Information Committee of the American Petroleum Institute, has been transferred to Dallas. He replaces **Paul Cain,** who has resigned to become executive vice president of a new public-relations firm.

Alfred W. Waddill, Houston Oil Field Material Co., Inc., has been elected chairman of the Gulf Coast section of the A.I.M.E. Other new officers include: **Dr. George R. Gray,** Baroid Sales Division of National Lead Co., vice chairman; **Everett F. Stratton,** Schlumberger Well Surveying Corp., secretary-treasurer; and **Herman A. Otto,** Tennessee Gas Transmission Co., and **Thomas C. Borland,** Stanolind Oil & Gas Co., directors.

Joseph A. O'Brien, geologist for Shell Oil Co., has resigned to become Corpus Christi district geologist for Superior Oil Co.

M. H. Robineau, president of Frontier Refining Co., Denver, has been elected president of the Independent Refiners Association of America. The association is moving its national office from Houston to Washington.

William M. Wilson, formerly assistant superintendent of the refining division for Lion Oil Co., has been named superintendent of the new natural-gas department of the oil production division.

Alexander Clark, Jr., formerly assistant division engineer for Stanolind Oil & Gas Co., Fort Worth, has been named division engineer for the firm's North Texas-New Mexico division, succeeding **R. W. Collins** who has resigned. Clark received his B.S. degree in petroleum engineering from Texas A. & M. College in 1940, and joined Stanolind in May of that year. **T. M. Curtis,** formerly district engineer for Stanolind in Midland, Tex., will succeed Clark as assistant division engineer at Fort Worth. **J. C. McCarthy,** formerly petroleum engineering supervisor in the firm's general office at Tulsa, will be transferred to Midland as district engineer, replacing Curtis.

Frank N. Bosco, petroleum engineer and geologist, is engaged in consulting and managerial work, well completions, and lease valuations for independent operators in the Denver basin of Colorado, Nebraska, and Wyoming. His headquarters are now in Denver.

Montaz AboulMaad, an Egyptian citizen, now engaged in studying the oil industry in the United States, spent some time recently observing production, transportation, refining, and marketing operations of Ashland Oil & Refining Co. His training in oil-industry operations in this country is being carried on in connection with the United States Government's Point Four program which provides for sharing technical knowledge with other nations. AboulMaad received his master's degree in petroleum engineering from University of Texas.

It doesn't have to be this way...

"Sorry, Steve, but you gotta go back to the Peterson... rods parted in No. 11 just after you left. We'll have to get them fixed before we can pull the two Dunlap wells... If you see Shorty, tell him to high tail it to the C. Jones with his paraffin gang, 3 lead lines there are plugged solid... I'll try to locate a contract unit, but... etc., etc."

It can be like this!

"Bruth-h-er, if it wasn't for those Free Pumps, we'd be trying to find the roads this morning. All the pumpers have checked in... They don't have any problems they can't handle. So, why don't you have the gang work on tools in the garage, today?"

..Free Pumping Makes the Difference!

There's nothing magic about *Free Pumping*—it just seems like there is. Producers accustomed to having operating costs go up when the weather gets rough are almost always amazed to find that when they install *Free Pumps*, bad weather doesn't affect the system's low operating costs.

The reason, of course, is that with *Free Pumps* installed, the lease pumper, without help, can handle all operating problems that arise. For example, if paraffin is plugging lines and tubing he can handle it easily with Kobe soluble plugs. If a well goes off he can readily change-out the bottom-hole *Free Pump*. Features such as these are responsible for the ability of *Free Pumps* to cut operating costs by 30% to 50%—regardless of the weather or operating conditions.

Your nearest Kobe representative, who can tell you where more than 1000 *Free Pumps* have been installed, can also tell you how economically *Free Pumps* can be installed and operated on your properties. Why not call him today?

Free Pump
KOBE
ONE OF THE DRESSER INDUSTRIES

KOBE, INC. *General Offices:* Huntington Park, California. *Division* and *District Offices:* Avenal, Bakersfield, Huntington Park and Ventura, California; Great Bend, Kansas; Hobbs, New Mexico; Healdton, Oklahoma City, Tulsa, Oklahoma; Brownfield, Corpus Christi, Fort Worth, Houston, Kilgore, Odessa, Texas; Casper, Wyoming; New York City.

PERSONALS

and a bachelor of science degree in petroleum engineering from Fuoad First University, Cairo, Egypt.

W. F. Dau has been elected a member of the board of directors for Sinclair Oil Corp., filling the vacancy caused by the recent death of William P. Phillips. Dau joined Sinclair in 1917 as an employe of the accounting department at Chicago, and was transferred to the treasury department in New York in 1921. In 1924 he returned to Chicago, assuming charge of the firm's financial operations in that area, and in 1929 returned to New York. In 1943 he was elected vice president and assistant treasurer, and in 1949 was elected treasurer, which position he now holds.

Clyde H. Barnett has been named subdistrict manager at Marietta, Okla., for Lone Star Gas Co. He has been there since 1946.

W. S. Lentz, Panhandle district engineer at Kellerville, Tex., for Warren Oil Corp., has been transferred to the North Texas division at Graham, Tex., as tool pusher.

V. J. Taylor who has been with Shell Oil Co.'s geological department for 10 years in Texas, Oklahoma, and Kansas, has resigned to become a consultant at Wichita.

J. F. Ralstin, who recently resigned as vice president and geologist of Franco-Central Oil Co., has joined D. R. Lauck Oil Co. at Wichita.

Wendell C. Peel and **Glenn W. Peel** have organized as Peel Brothers, Inc., drilling contractors and producers, with offices at Hoisington, Kans. Wendell is president, Glenn is vice president, and **R. E. Sutton** is secretary-treasurer.

Forrest M. Darrough, a member of the board of directors of Carter Oil Co. since 1944, has been elected a vice president of the firm. In addition to his new office, Darrough will continue in his present capacity as general counsel of the company and head of its legal department. He has been with Carter for 20 years.

Madison Farnsworth, general manager of the Houston sales division, Gulf Oil Corp., was elected chairman of the Gulf-Southwest Oil Industry Information Committee which administers the industry's informational program in New Mexico, Texas, Arkansas, Louisiana, Mississippi, and Alabama. Farnsworth succeeds **G. L. Tate,** of Magnolia Petroleum Co., Dallas. **C. J. Guzzo,** Gulf Refining Co., New Orleans, and **John P. Morgan,** Sun Oil Co., Dallas, were reelected vice chairmen of the district committee. State chairmen who will direct the Gulf-Southwest O.I.I.C. program under the leadership of Farnsworth include: New Mexico chairman, **F. E. Chapman,** Standard Oil Co. of Texas; for Mississippi, **E. H. Simpson,** Independent Petroleum Co., Jackson; for Louisiana, **Duncan Stevenson,** Shell Oil Co., New Orleans; for Texas, **Roy M. Stephens,** Humble Oil & Refining Co., Houston; for Alabama, **L. Phillip Magee,** Gulf Refining Co., Birmingham.

Charles E. Gauer has been named supervisor of the mechanical shop group at Standard Oil Development Co.'s Esso Laboratories, Bayway, N. J.

J. H. Wagner, formerly field superintendent at West Edmond, Okla., for Stanolind Oil & Gas Co., has been made superintendent at Vivian, La. He will be succeeded at West Edmond by **Eugene Fisher,** formerly at Monroe, La.

V. A. Peterson, formerly head of geophysical operations for Sinclair Oil & Gas Co.'s Rocky Mountain division, has been named supervisor of geophysical operations with the company's Tulsa office. **Robert L. Schmidt** has been transferred to Denver to replace Peterson.

***SUNRAY CONCLAVE.**—Production-department superintendents and engineers for Sunray Oil Corp.'s Mid-Continent division met in Tulsa last week to review the 1951 field-operations program and consider special projects in more than 250 fields in the eight-state area. Shown here during the conference are: Seated—Alvin Summers, Oklahoma superintendent; J. R. Vandever, general superintendent; H. O. Harder, vice president; John Douma and C. J. Kerwin, assistant general superintendents; Carl Wilson, Gulf Coast superintendent. Standing—C. F. McCarroll, Tulsa office manager for production; Fred Goddard, assistant superintendent, Alice, Tex.; Bob Chesney, superintendent, Benton, La.; Perry Gill, North and West Texas superintendent; Fred McDaniel, assistant superintendent, Great Bend, Kans.; A. E. Hoffman, superintendent, Lake Charles, La.; V. L. Smith, assistant superintendent, Wewoka, Okla.; G. E. McClatchey, engineer, Lewisville, Ark.; C. C. Shreve, Kansas superintendent; H. D. Jones, superintendent, Lewisville, Ark.; Vaughn Knight, district superintendent, Snyder, Tex.; W. L. Horner, chief petroleum engineer; and Keith Lindley, engineer, Lewisville, Ark.*

PERSONALS

John Avila, formerly with National Geophysical Co. of Dallas in the Henderson, Ky., district, has joined the geological department of Ryan Oil Co. at Evansville, Ind.

Raymond C. Gaugler, a director of Jefferson Chemical Co., Southern Minerals Corp., and Southern Pipeline Corp., has been elected president of American Cyanamid Co., succeeding William B. Bell, who died December 20.

Lamar McLennan, Jr., has been named chief of the exploration and geological department of Seaboard Oil Co.'s West Texas district office in Midland. He has been district geologist for the firm in this area for several years, but until recently the supervisory responsibilities of the exploration department had been divided between him and **George R. Gibson.** Gibson had been geological coordinator for Seaboard in West Texas for 3 years prior to his resignation from the firm on January 1, to become a consulting geologist and independent trader in the oil business.

Gilbert P. Moore, Dallas consulting geologist, has been named president of the Dallas Geological Society. Other officers elected include: **Wallace Ralston,** Sun Oil Co., vice president; **John C. Dunlap,** DeGolyer & MacNaughton, secretary-treasurer; and **Albert E. Oldham,** American Liberty Oil Co., executive committee.

A. N. Kerr, president of Imperial Gas Co., Los Angeles, has been presented with a Distinguished Service Life Membership in the Liquefied Petroleum Gas Association, an award given to individuals who have made an outstanding contribution to the advancement of the L.P.-gas industry or of the association.

O. P. Brown, formerly with Shell Oil Co., will be geologist in charge of the new Wilshire Oil Co. office at Denver.

W. D. Henderson, Midland consulting geologist, was elected president of the West Texas Geological Society for 1951, succeeding **John M. Hills. Alan B. Leeper,** assistant manager of exploration, West Texas division, Honolulu Oil Corp., was elected vice president, succeeding **J. H. Bartley.** Leeper is a graduate of Wooster College, Wooster, Ohio. **Roy M. Huffington,** a graduate of Southern Methodist University, and special problems supervisor, Humble Oil & Refining Co., was named secretary, succeeding **H. L. Williams. C. H. Atchison,** district geologist, for Honolulu Oil, was elected treasurer of the organization, succeeding **L. C. Mills.**

W. B. Bounds, assistant superintendent of Magnolia Petroleum Co.'s Vanderbilt, Tex., district, has been transferred to Alice, Tex. Other changes in the firm include: **H. L. Baker, Jr.,** assistant superintendent of the Vanderbilt natural-gas district, transferred to Falfurrias, Tex.; **George G. Clark,** chief clerk of the Healdton, Okla., district to Dallas as senior administrative assistant in charge of departmental operations of the natural-gas department; **E. J. Wacker,** assistant chief mechanical engineer at Magnolia Pipe Line Co. offices in Dallas, to Midland, Tex., as assistant division superintendent of the western division; **Roland McDonald,** named district superintendent of the Southwest Texas district with headquarters at Alice, succeeding **H. C. Alton,** who has retired; **J. S. Black,** district foreman, named assistant district superintendent of the West Texas district at Snyder, Tex.; **James M. Henagan, Jr.,** transferred from Lake Charles, La., to Shreveport as petroleum engineer, and will be engaged in reservoir and evaluation work; **Emil C. Pela,** petroleum engineer in the Healdton producing district, transferred to the Lake Charles district with headquarters at Mamou, La.; and **J. G. Litherland, Jr.,** transferred from the Falfurrias producing district to the West Texas division at Midland, where he will engage in reservoir and evaluation work for the West Texas producing division.

J. T. Durkee, formerly assistant comptroller and assistant treasurer, has been appointed comptroller of General Petroleum Corp. **Gordon D. Campbell** and **Howard W. Wilson** have been appointed assistant comptrollers.

Cecil V. Hagen, formerly chief geologist for Superior Oil Co. of California, and recently a consulting geologist in Houston, has been named president and general manager of Canada Southern Oils, Ltd., which will be organized in the immediate future as a subsidiary of Pancoastal Oil Co.

Stafford Park, formerly development engineer for Continental Consolidated Corp., Long Beach, has joined Fullerton Oil Co., Pasadena, Calif., as senior petroleum engineer.

D. L. Yabroff has been named manager of the manufacturing-research department in the New York head office for Shell Oil Co., succeeding **M. P. L. Love,** who has been transferred to Houston as manager of the refinery. Yabroff graduated from University of Nebraska and University of California where he received his doctorate in chemistry, and joined Shell Development Co. in 1934 as a research chemist at the Emeryville, Calif., laboratories. He was appointed head of the process development department there in 1944, and in 1948 an associate director of research. He was named an associate director of development in 1950.

DEATHS

Edwin E. Hedene, chief engineer of Nordstrom Valve Division, Rockwell Manufacturing Co., died on December 28 at Pittsburgh.

E. A. Ungren, 63, partner in the oil firm of Ungren & Frazier, at Abilene, Tex., died January 12 at Abilene.

William S. Wilsey, office manager for Envoy Petroleum Co. for the past 18 years, died January 2 at Long Beach.

Andrews J. Barrett, 60, of the legal department of National Associated Petroleum Co., died January 11 in Tulsa.

Guido U. Ringler, 64, president of Italian Esso Standard Oil Co., Italian marketing affiliate of Standard Oil Co. (N. J.), died January 9 in Genoa, Italy.

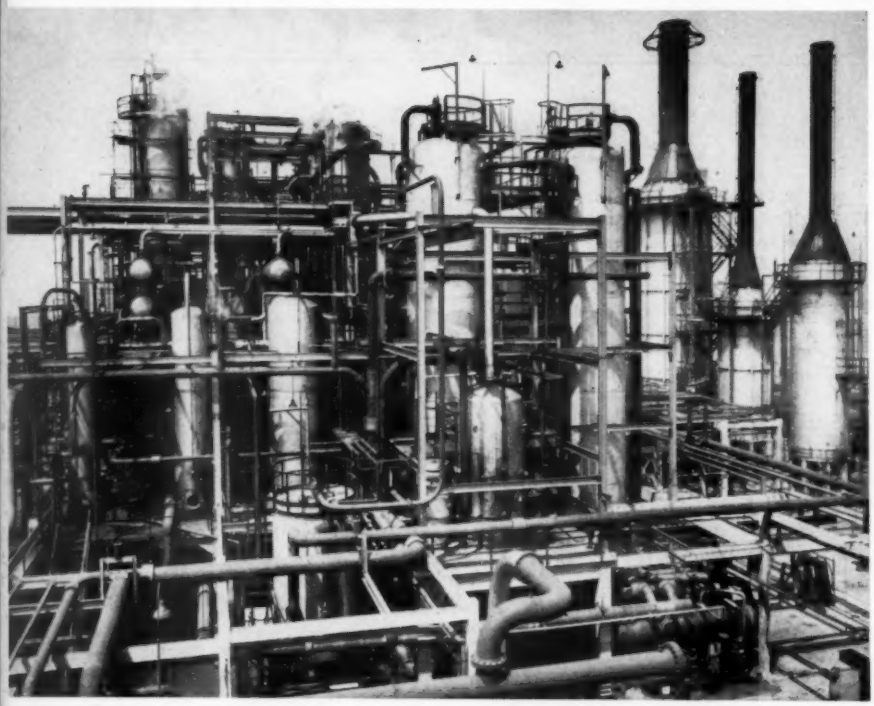
Milton J. Williamson, 68, formerly a driller in the Canadian West, and for 5 years manager of J. J. Gray oil properties, Chatham, Ont., died at Petrolia, Ont.

R. Quincy Lee, 39, field man for Chappel Hill Gas Co., was killed in an automobile accident near Farmington, N. M., January 3.

Charles S. Washburn, 60, engineer for Mid-Continent Petroleum Corp., died January 10 at Tulsa. He had been with Mid-Continent since 1929.

B. I. Griffin, 58, retired Phillips Petroleum Co employe, died January 3 at Ranger, Tex.

Cecil L. Redman, 49, automotive supervisor for Shell Oil Co., died January 8 at Tulsa. He had been with Shell since 1928.



Over-all view of new propane deasphalting unit.

Propane Unit

Table 1 shows a comparison of actual rates and characteristics of charge oil and products vs. design specifications for the propane deasphalting unit which serves a dual purpose. In addition to its operation in conjunction with the lube plant, the unit produces a deasphalted residual fraction suitable as feed stock for catalytic cracking operations. About 40 per cent of the time it processes lube stocks and during the remaining 60 per cent of operating time, it serves the cat cracker.

The propane deasphalting unit was designed to operate with two 10 by 53-ft. treating towers connected in parallel. This design was selected to avoid the expense and possible delay involved in fabrication of a single tower suitable for 500-psi. operation and to assure proper distribution and contacting during treating. The towers were built with 24 plate-type baffles with steam coils for maintaining the desired temperature gradient throughout the treating section rather than concentrated heating in the top as in earlier designs. These towers have performed satisfactorily at rates up to 5,000 bbl. per day through one with a 6 to 1 propane ratio.

Wax and Lube-Oil Manufacture

at Sinclair's East Chicago Plant

Propane deasphalting, phenol treating, and MEK dewaxing processes replace former acid-treating and wax-treating plants. The new designs follow very closely those in other Sinclair refineries

INCLUDED in Sinclair's East Chicago plant postwar modernization program are new facilities for dewaxing and treating lube oils. The processes installed for this phase of the refinery's operations are propane deasphalting, phenol treating, and M.E.K. dewaxing. These units replaced the old conventional acid-treating and wax-pressing plants which had been in operation since shortly after World War I.

These units were selected because other Sinclair refineries have been successfully producing high-grade lubricating oils with similar processes. The new equipment was built on a cost-plus basis by Lummus Co. working in conjunction with Sinclair engineers on both the design, and erection of the units. The basic process design followed closely that of those which have been in operation at other Sinclair refineries since shortly before World War II. However, numerous mechanical and arrangement revisions were made based on experience gained in the operation of similar units at Sinclair's other refineries.

As the characteristics of the crude which would supply the feed stocks to these processes were expected to vary, these units were designed to circulate specific quantities of solvent and oil, consequently the throughputs and yields on actual operation vary widely from process design figures.

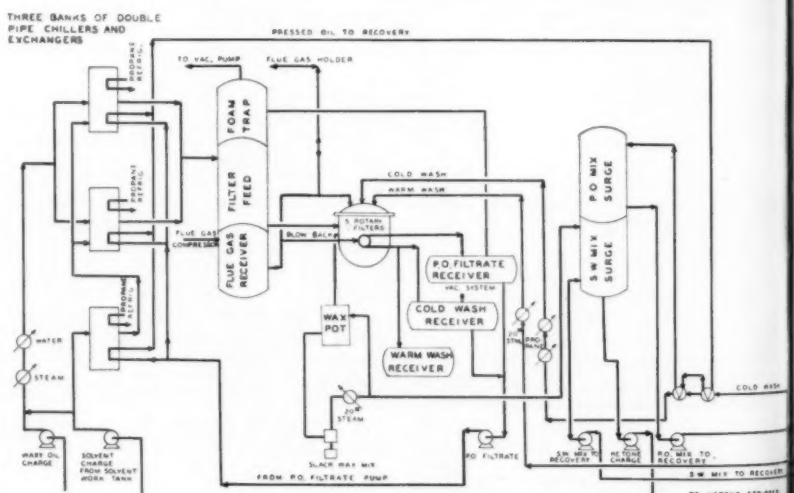


Fig. 1—Flow arrangement of the MEK dewaxing unit at Sinclair's East Chicago refinery.

Quality of the deasphalted oil is affected somewhat by the temperature gradient in the towers. Best results have been obtained by concentrating the heat between the third and seventh baffle with the charge stock entering the tower just above the thirteenth baffle. Propane enters the tower below the twenty-fourth baffle or just above the asphalt level. A temperature change at the top of the treating tower has more effect on product quality than an equivalent change of temperature at the bottom of the tower.

Increased propane ratios have proved far more effective in producing greater yields of deasphalted oil of higher viscosity and lower Conradson carbon residue than any other variable factor. With all other conditions constant by increasing the propane ratios from 5 to 10 to 1 the penetration of the asphalt has been decreased from 30 to 5, while the color of the deasphalted oil has improved from one to two N.P.A. color points, with the viscosity of the deasphalted oil increasing as much as 10 seconds S.S.U. at 210° F. and the Conradson carbon decreasing as much as 0.5 per cent.

The asphalt heater is a Petro Chem with a helical coil. This type of coil was selected in order to accommodate the burning out of asphalt deposits, thus eliminating the use of conventional tube cleaners which do not operate well on the type of deposits which are likely to occur. This coil has developed leaks in the lower sections where vaporization takes place due undoubtedly to high salt content in the asphalt charge, as much as 3,000 lb. per 1,000 bbl. of asphalt has been encountered.

The asphalt flow to this heater was reversed to change the point of vaporization. This change aided to some extent, however, since installing a desalter on the crude feed to the unit supplying reduced crude to the propane unit no further trouble has been encountered.

The deasphalted oil flash system consists of a common flash drum with a cylindrical internal baffle to provide high and low-temperature sections. Heat for initial low-temperature flashing is provided by exchange with 15-psi. exhaust steam. This operation is followed by high-temperature flashing, the heat for which is obtained by exchange with 125-psi. steam.

Bottoms material from the initial flash is jetted through the final heat exchange by a deasphalted oil-propane mix which bypasses the initial flash heat-exchange step. Continual deasphalted oil carryover from this flash tower, caused by vapor velocities in excess of 1 ft. per second, was eliminated by installing a large vapor line in addition to a mist extractor.

A dump system is provided which can be actuated remotely by means of pneumatically operated cocks. This permits the liquid charge in the unit to be dumped in case of fire or other emergency. The dump lines drop into a 9 by 40-ft. surge tank where asphalt and liquid propane can collect with

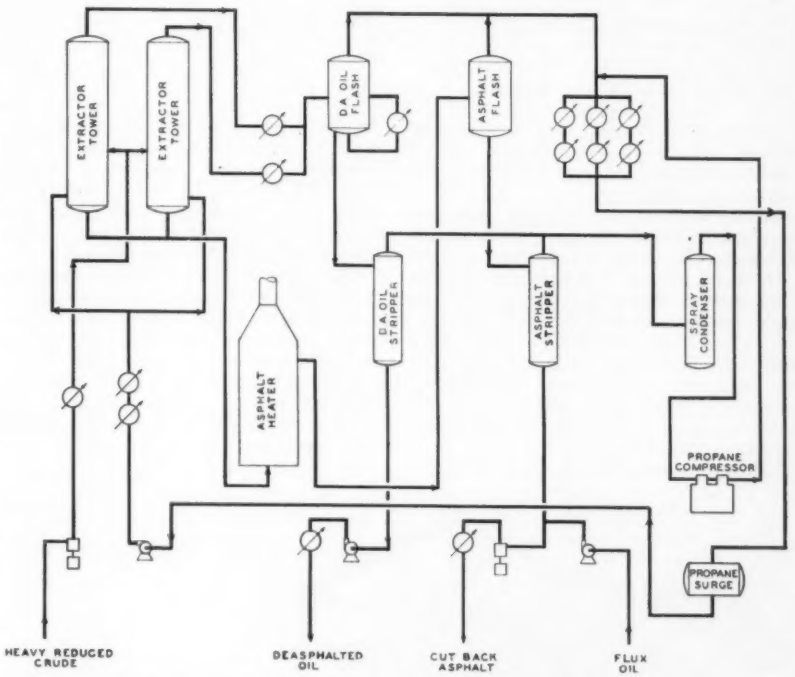
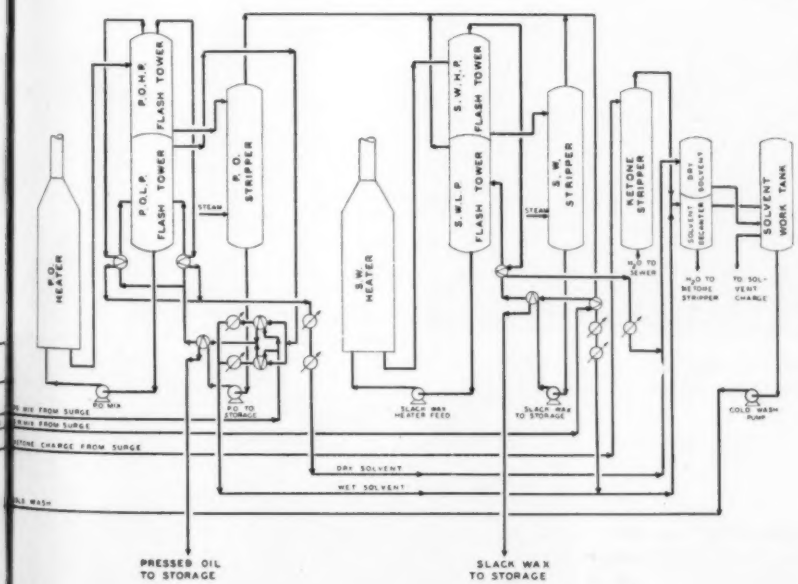


Fig. 2—Schematic flow diagram of the propane deasphalting unit.



the gas passing through a 16-in. line to a 2,000-bbl. sphere for secondary liquid removal. From the sphere the gas passes into an overhead flare. Other design features of the unit follow usual practice in propane deasphalting and are shown on the flow diagram, Fig. 2.

Phenol Unit

Design and actual rates and product qualities experienced in the operation of the phenol extraction unit are compared in Table 2.

The phenol unit was built with the main structure, pump house, and control room common with the propane unit. This arrangement has proved satisfactory and has, we believe, resulted in an operating-labor cost saving over that which could be expected with completely separate units. The flow of this unit is similar to previously built units of this type. Special precautions were taken in the design of the drainage system so that all drainage which might contain

TABLE 1—PROPANE UNIT YIELDS—DESIGN VS. ACTUAL LUBE OPERATION

	Design			Actual		
	Charge	DAO	Asphalt	Charge	DAO	Asphalt
Bbl. per operating day	5,100	3,320	1,780	6,640	4,320	2,320
Solvent ratio	10:1	....	....	7.5:1	....	....
°A.P.I. gravity	16.3	22.8	....	16.3	22.9	....
Sp. gravity	....	....	1.030	....	....	1.034
Flash C.o.c. °F.	550	550	....	535	530	....
Vis. S.s.u. @ 210°	430	....	....	565	137	....
Pour °F.	70	120	....	70	105	....
Color N.P.A.	....	6	....	....	6—	....
Carb. residue %	9.25	1.2	....	10.2	1.51	....
Penetration @ 77° 100-gm. needle	....	....	200+	....	....	29
FLUID FEED OPERATION						
Bbl. per operating day	7,000	5,000	2,000	9,000	6,400	2,600
Solvent ratio	7:1	....	....	5.6:1	....	....
°A.P.I. gravity	16.3	22.2	....	17.3	22.9	....
Sp. gravity	....	....	1.045	....	....	1.036
Flash C.o.c. °F.	550	550	....	510	500	....
Vis. S.s.u. @ 210°	430	130	....	357	124	....
Pour °F.	70	120+	....	70	110	....
Color N.P.A.	....	6	....	....	8	....
Carb. residue %	9.25	1.4	....	9.25	1.9	....
Penetration @ 77° 100-gm. needle	....	....	5-10	....	....	27

phenol is channeled into a retaining sump where it is analyzed before being released to the regular plant sewer system.

Extensive steam tracing was installed to eliminate the possibility of freezing in lines containing phenol or waxy stocks. All safety-valve effluent is collected in a gathering system and discharged into a small vessel equipped with a circulating quench; this vessel is then vented to a cone-roof tank in an attempt to eliminate hazards resulting from the release of this toxic material to the surrounding areas.

Petro Chem units furnish heat to both the raffinate and the extract-recovery systems. Carbon-steel tubes were used in both heaters; however, monel inserts 1 ft. long were installed in the extract heater. This heater contains four parallel vertical coils. Great care was taken to design the piping to and from this heater so that it was absolutely symmetrical thereby insuring more uniform coil outlet temperatures. The heater outlet lines are stainless steel and discharge into a 16-in. Schedule 80 carbon-steel transfer line. With exception of the tube bundle in the phenolic water condenser and pump impellers this includes the only alloy used in construction of the unit.

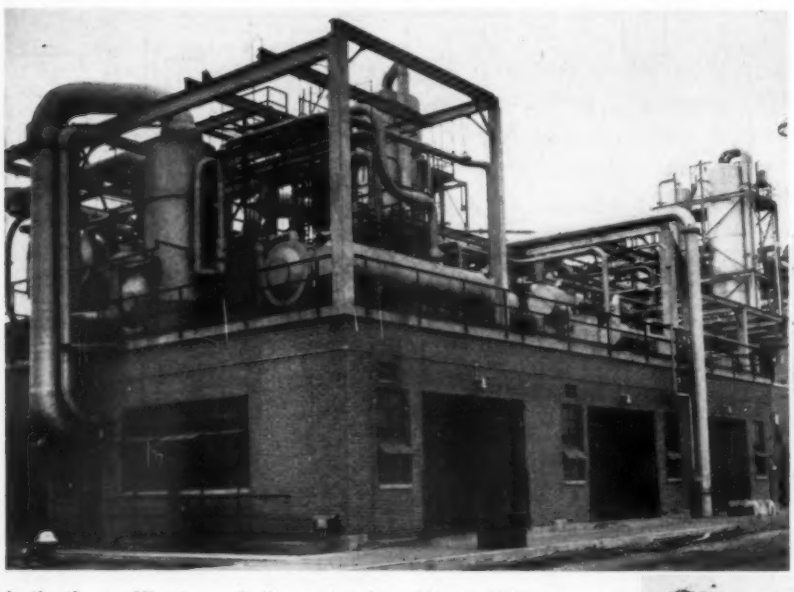
The phenol drier was designed so that the downcomer area was approximately three times that generally considered sufficient. This tower has operated without difficulty.

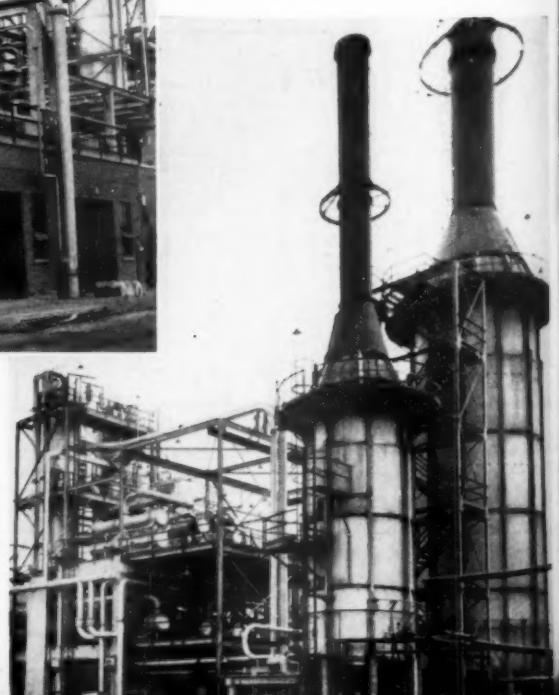
The treating-tower trays were designed to promote mixing in as small a zone as possible and to provide maximum settling time and at the same time allow adequate upgoer and downcomer to take care of any conceivable volume of reflux cycling. Considerable trouble has been experienced in preventing phenol from carrying over with the raffinate phase. This phenol carryover is accentuated when the charge stock is contaminated with asphaltic compounds as contained in reduced crude. This carryover of phenol in the raffinate can be reduced by decreasing the rate of charge oil feed or by using large quantities of phenolic water at the top of the tower. However, when employing the volume of phenolic water necessary to prevent the phenol carryover, excessive phenol ratios are required to obtain the desired viscosity-index improvement on the charge oil.

More success has attended operation with an isothermal tower rather than the usual tower operation maintaining a temperature gradient between the top and bottom of the tower, raffinate yields were increased, and the phenol carryover was minimized. As noted in Table 2 when producing relatively low-v.i. products, design capacities and yields are exceeded. Although design data on the unit did not include high-v.i. operation, yields of high-v.i. raffinate when operating at maximum throughputs are somewhat lower than would be expected.

This unit was brought down for inspection and minor alterations following an initial run of 585 days' continuous operation since February 18, 1949. Inspection revealed the unit to be in excellent condition except for the phenolic water piping and the steel tube sheet in the phenolic water condenser. It is planned to replace the phenolic water lines with 18-8 stainless steel.

To correct the condition found in the phenolic water condenser it was decided to operate the condenser at





Above: MEK unit refrigeration section.

Right: MEK unit heaters and fractionator section.

TABLE 2—PHENOL UNIT YIELDS—DESIGN VS. ACTUAL
RESIDUAL LUBE OPERATION

	Design			Actual		
	Charge	Raffinate	Extract	Charge	Raffinate	Extract
Bbl. per operating day	3,330	2,160	1,170	4,933	3,552	1,381
Solvent Ratio	3.5:1	....	....	1.9:1	....	....
°A.P.I. gravity	22.8	27.0	15.5	22.9	26.6	15.0
Flash C.O.C. °F.	550	550	550	530	530	530
Vis. S.S.U. @ 100°	....	....	....	....	....	....
Vis. S.S.U. @ 210°	130	110	....	137	118	260
V.i. (dewaxed)	65	87	....	67	88	....
Pour	120+	120+	....	105	110	65
Color N.P.A.	6	5	....	6—	4½	....
Carbon residue	1.4	0.50	....	1.5	.6	....
WAXY NEUTRAL OPERATION						
Bbl. per operating day	6,000	4,500	1,500	....	....	....
Solvent ratio	1.5:1	....	....	....	....	....
°A.P.I. gravity	27.5	32.0	15.5	....	....	....
Flash C.O.C. °F.	385	....	....	....	....	....
Vis. S.S.U. @ 100°	140	110	....	....	....	....
Vis. S.S.U. @ 210°	42.6	41.0	....	....	....	....
V.i. (dewaxed)	65	87	....	....	....	....
Pour °F.	80	95	....	....	....	....
Color N.P.A.	Dk	2	....	....	....	....
Carbon residue, per cent	0.05	0.01	....	....	....	....

	Low viscosity index Actual			High viscosity index Actual		
	Charge	Raffinate	Extract	Charge	Raffinate	Extract
Bbl. per operating day	6,900	6,210	690	6,083	3,947	2,136
Solvent ratio	0.76:1	....	....	1.6:1	....	....
°A.P.I. gravity	27.6	30.0	9.0	27.0	33.2	16.6
Flash C.O.C. °F.	385	390	380	395	400	390
Vis. S.S.U. @ 100°	145	130	....	165	124	....
Vis. S.S.U. @ 210°	42.5	41.5	63	44	42	51
V.i. (dewaxed)	67	80	....	67	97	....
Pour °F.	80	85	25	80	90	45
Color N.P.A.	Dk	1½	Dk	Dk	1—	Dk
Carbon residue, per cent	0.03	0.005	....	....	0.002	....

TABLE 3—M.E.K. UNIT YIELDS—DESIGN VS. ACTUAL
Neutral Dewaxing

	Design			Actual		
	Charge	Pressed oil	Slack wax	Charge	Pressed oil	Slack wax
Bbl. per operating day	5,200	4,680	520	6,566	5,588	978
Ratio	4:1	....	....	2.5:1	....	....
°A.P.I. gravity	27.5	....	....	33.2	31.8	....
Flash °F.	385	....	....	400	390	400
Vis. S.S.U. at 100°	140	....	....	124.0	144.9	....
Vis. S.S.U. at 210°	42.6	....	....	42	42.7	....
V.i	....	....	....	113	96.6	....
Pour °F.	80	10	....	90	10	....
M.p. °F.	....	....	....	....	....	122.7
Per cent oil (A.S.T.M.)	....	....	....	....	....	6.0
Residual Dewaxing						
Bbl. per operating day	3,250	2,600	650	4,200	3,700	500
Solvent ratio	7 : 1	....	....	6.85 : 1	....	....
°A.P.I. gravity	27.0	....	....	26.6	25.5	33.5
Flash °F.	550	....	....	530	525	535
Vis. S.S.U. at 100°	....	....	....	....	2,000	....
Vis. S.S.U. at 210°	110	....	....	118	125	72
V.i.	....	....	....	....	87	....
Pour °F.	120+	15	....	110	15	....
M.p. °F.	....	....	....	....	....	151
Per cent oil (A.S.T.M.)	....	....	....	....	....	6.2

TABLE 4—M.E.K. DEWAXED OILS
Neutral Oils Characteristics

	At 100°F.					
	95 V.i. 75 vis.	95 V.i. 155 vis.	95 V.i. 200 vis.	95 V.i. 320 vis.	80 V.i. 200 vis.	85 .i. 400 vis.
°A.P.I. gravity	33.5	32.0	31	30.0	29	28.5
Flash °F.	365	410	415	440	400	445
Fire °F.	420	470	485	510	460	505
Vis. at 100°F.	78	160	200	330	200	420
Vis. index	95	95	95	95	80	85
Pour °F.	10	10	10	10	10	10
Color	1—	1—	1½+	2½+	2½—	3+
Carbon residue	.01	.01	.02	.03	.025	.05

Residual Oils Characteristics

	85 V.I., 120 vis. at 210° F.	95 V.I., 120 vis. at 210° F.
°A.P.I. gravity	26.0	28.0
Flash °F.	520	525
Fire °F.	590	595
Vis. at 210°F.	120	120
Vis. index	87	95
Pour °F.	15	15
Color	6+	6—
Carbon residue	.8	0.6

atmospheric pressure, holding the pressure on the drier by controlling the vapors to the condenser rather than the effluent liquid.

In an attempt to promote settling on the trays in the treating tower, stainless steel matting was installed to a depth of 7 in. over the downcomers on the bottom 14 trays. Preliminary indications are that the mats are of some benefit. Phenol carryover with the raffinate phase has been reduced and composition of the extract solution withdrawal from the tower has been much more uniform than in the past.

M.E.K. Unit

Actual and design yields together with throughputs and product qualities for the M.E.K. unit are compared in Table 3.

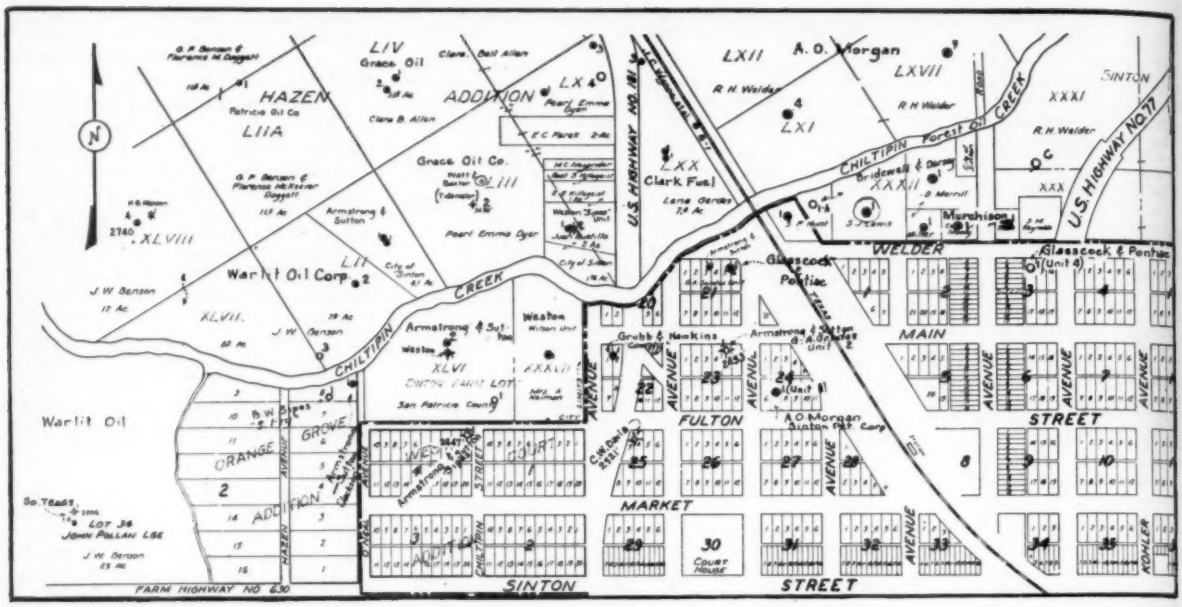
In comparison with earlier units, the distillation section of the M.E.K. plant has been increased in size to take advantage of the additional capacity found by earlier experience to exist in the filters and double pipe exchangers which are considered to be the major equipment. Design has been simplified by elimination of a decanter and elimination of controlled flow of blanketing flue gas through the filter hoods. The filters are provided with a flue-gas blanket which floats on the flue-gas holder. As shown by the yield table, the unit operates on the conventional cycle rather than "reverse sequence" which has been used on some M.E.K. plants recently designed. The flow of this unit is shown on Fig. 1.

Filtration equipment consists of five 625-sq. ft. rotary filters. Refrigeration is provided by three 600-hp. synchronous motor-driven reciprocating compressors using propane as a refrigerant. Propane was selected because of its availability in the refinery and the fact that it would operate under positive pressures at the temperature conditions prevailing in the chillers thus eliminating the possibility of air leakage into the refrigeration system.

The chillers are of the conventional double pipe design. They were erected with merely a roof for protection rather than a full brick building which has been the customary design layout in northern climates. This type of construction resulted in considerable saving.

This unit has been in continuous operation since June 27, 1949, except for one 8-hour period when the pressed oil recovery system was on circulation while repairing a leaking tube in the slack wax heater.

The dewaxed neutral raffinates produced on this unit are rerun and then clay contacted for the base stocks necessary for the manufacture of finished lubricating oils. The dewaxed residual oils produced on this unit are finished by processing through the clay contact plant. The characteristics of these stocks are shown in Table 4.



Map showing oil development in the vicinity of the Sinton townsite, San Patricio County, where 11 drilling rigs are running in the busiest area in South Texas. (Base map courtesy R. S. King, Sinton.)

West Sinton: South Texas' Most Active Drilling Area

by Joseph A. Kornfeld
District Editor

This 73-well field presently has a total of 28 operations. Recently it had a new-pay discovery, stimulating current development. Four wells have been completed within the city limits of Sinton.

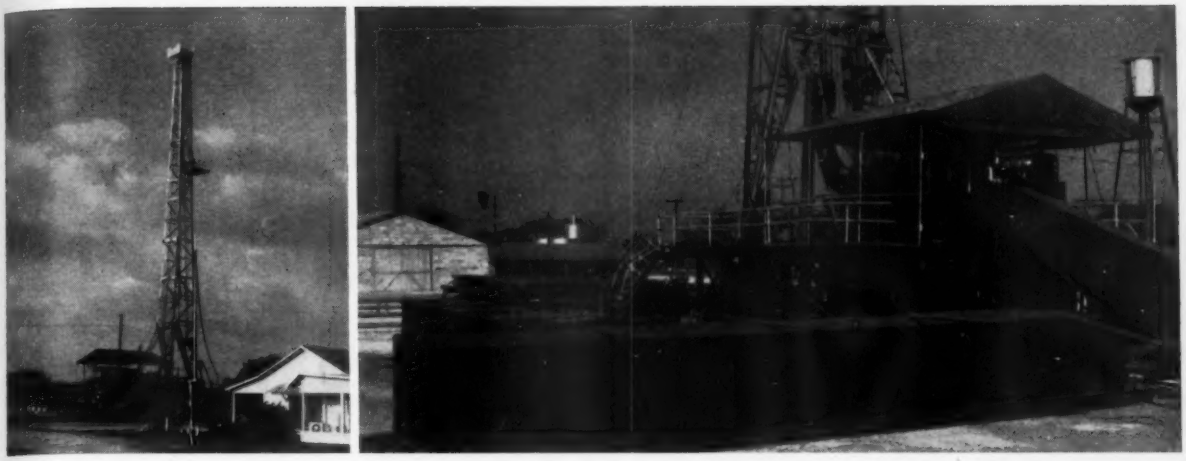
WEST SINTON FIELD, the most active drilling area in South Texas at this writing, has 11 rigs active, 1 rig up, and 16 locations staked. Development centers in and around the townsite of Sinton, county seat of San Patricio County. Development is being carried out on proration units of 20 acres.

Although discovered 6 years ago, West Sinton has 73 oil wells on production as of November 1, 1950. The latest of a series of recurrent booms is that which was initiated 4 months ago and which borders the northwest corner of the townsite. Principal objectives are the 4,400 and 5,100-ft. Frio (Oligocene) oil reservoirs.

Diesel-powered direct-driven drilling rigs, 127-ft. masts, and steel mud tanks feature the rig layouts at West

TOWNSITE PLAY.—Principal development at Sinton lies in the 4,400 and 5,100-ft. Frio-sand objectives. J. & C. Drilling Co. (Refugio, Tex.) Rig 5 is shown working at Arnold O. Morgan (Corpus Christi) A-6 R. H. Welder.

BUSY SPOT.—This view, taken at Murchison & Co. 1 E. E. Burk, on a 0.76-acre lease in Farm Block 30, Sinton Farm Lots, shows crews connecting up separator at left, burying flow lines at center, and building tank battery at right.



DIESEL RIG.—The Journal cameraman caught these views of Rig 7 of C. G. Glasscock Drilling Co. of Corpus Christi as crews were rigging up at their 1 Sinton Townsite, Unit 4. General rig layout and the 127-ft. mast are shown in the left photo. Steel mud tanks appear in foreground of photo at right. A bank of three 145-hp. diesel drilling engines provide power for this 7,500-ft. rig.

Sinton. The extensive use of sidewall coring in conjunction with precision gun perforating enables satisfactory, rapid completions in the 5,100-ft. Frio-sand stringers. Dual completions are popular. In some cases, wells are made in two zones separated by only a 19-ft. shale break.

Allocation.—West Sinton field, insofar as the 4,400, 5,100, and 5,300-ft. reservoirs are concerned, is developed on the basis of 20-acre proration units. However, the shallow reservoirs which lie at depths varying from 1,375 to 3,372 ft., are developed on the basis of 10-acre units. Basis of allocation is 75 per cent acreage and 25 per cent per well.

Southern Pipe Line Co., of Corpus Christi, the principal crude-oil buyer at West Sinton, has Railroad Commission tenders to run 119,300 bbl. of oil from the Sinton area for the month of December 1950, according to T. E. Johnson, assistant superintendent. Southern operates its own field gathering system. The oil is moved by pipe line to its Simms station where 5,000 bbl. of field storage is located, thence to Christman station where there is 3,000 bbl. of field storage.

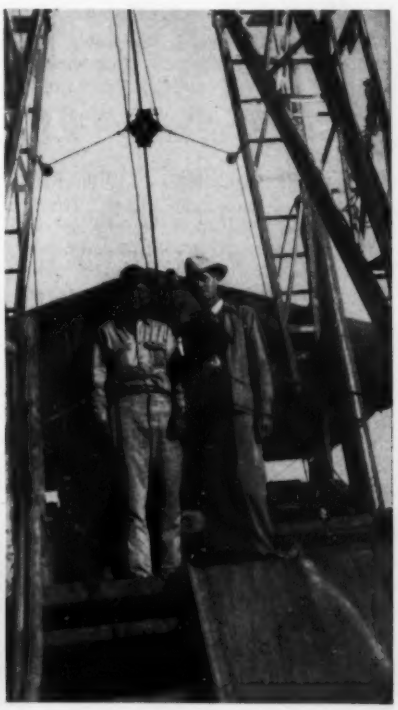
A 4-in. line takes the crude to Turkey Creek where it joins a 6-in. line to Corpus Christi. Southern operates a deep-sea terminal at Corpus Christi. Oil is delivered to local refineries and shipments are made via intercoastal canal and deep-sea tankers.

New-Pay Discovery

West Sinton field was given a new-pay discovery on September 7, 1950, with completion of B. B. Bridewell and W. G. Darsey, Jr. (Tyler, Tex.) 1 S. J. Lewis, located 130 ft. from the east and west lines of the lease and 190 ft. from the south line and 480 ft. from the east line of the lot in Farm Lot 32. It was completed for an initial potential of 172 bbl. of 30.2° oil through 10/64-in. choke. Casing was gun perforated for completion from 5,108-14 ft. with 24 shots. Gas-oil ratio was 413 cu. ft. per bbl. This completion stimulates current development.

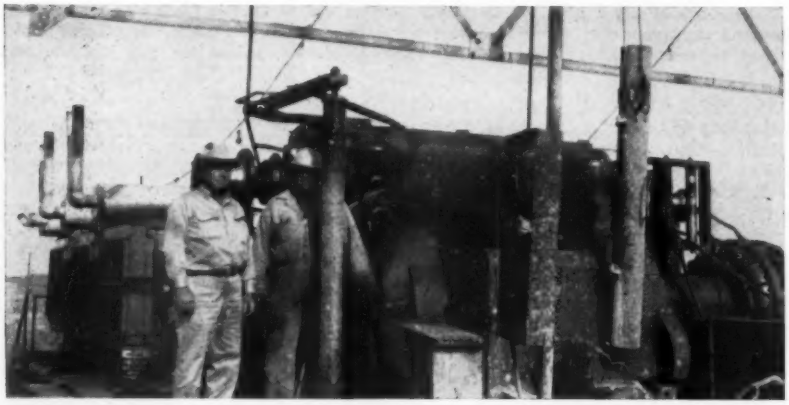
Townsite development.—Within the city limits of Sinton itself, four oil wells have been completed to date by Grubb & Hawkins (Houston), Armstrong & Sutton (Corpus Christi), and C. G. Glasscock and Pontiac Refining Co. (Corpus Christi). Latest completion is the latter's 1 Sinton Townsite, Unit 1, a dual completion. The upper reservoir, produced through casing perforations from 5,102-08 ft., drew an initial potential of 83.5 bbl. of 32.9° oil through an 11/64-in. choke with a gas-oil ratio of 675 cu. ft. per bbl. The lower reservoir, produced through the tubing, from perforations from 5,125-29 ft., gaged on potential 151 bbl. of 30.5° oil per day through a 9/64-in. choke with a gas-oil ratio of 675 cu. ft. per

DUAL COMPLETION.—(Left) William Crouch, service man, Otis Pressure Controls, Inc., is running separation tool on a dual-completion job in the 5,080 and 5,100-ft. Frio (Oligocene) sands at North Sinton field, San Patricio County, Texas.



AT WEST SINTON.—Gus Hellman, pusher, on rig floor of Rig 7 of C. G. Glasscock Drilling Co., planning casing program with Jimmy Storm, superintendent. This rig is working for C. G. Glasscock-Pontiac Refining Co. on a 7,500-ft. contract.

NEW-PAY DISCOVERY.—View of well head, heater-treater and tank battery of B. B. Bridewell & W. G. Darsey, Jr. (Tyler, Tex.) 1 S. J. Lewis, drilled on a 2.7-acre lease in Lot 32, Sinton Farm Lots, offsetting the Sinton townsite.



ON THE RIG FLOOR.—J. D. Stanley, pusher, left, is shown with R. W. Blair, driller at Rig 5, of J. & C. Drilling Co. This Journal photo was made at the A-6 R. H. Welder site.

bbl. Originally, this well was carried as Arnold O. Morgan 1 Sinton Townsite, Unit 1.

Sidetrack job.—Forest Oil Co., which has a lease on Chiltipin Creek, has set the long string on its second sidetrack attempt to obtain commercial production in the Sinton area. Buzzini Drilling Co., Alice, contractors for Forest, set the 5½-in. pipe at 5,365 ft. The new bottom hole is 417 ft. southwest of the surface location and is 551 ft. south-southeast of Arnold O. Morgan 3 R. H. Welder oil well in Lot 68. It is also 89 ft. south and 337 ft. west of the northeast corner of Sinton Farm Lot 31 but under Chiltipin Creek.

A few months ago, a prior sidetrack attempt was abandoned after reaching a bottom-hole location 120 ft. west-northwest of the surface location.

CASING PROGRAM, WEST SINTON FIELD, 5,100-FT. DEVELOPMENT

Item—	B. B. Bridewell & W. G. Darsey, Jr. 1 S. J. Lewis (ft.)	1 J. G. Miller (ft.)	1 Parsley-Merrill (ft.)
10¾-in. pipe	943	947	940
5½-in. pipe	5,214	5,132	5,130
2-in. tbg. swung at	5,090	5,082	5,090
Total depth	5,132	5,134	5,130
Csg. perforations	5,108-14	5,108-16	5,104-12

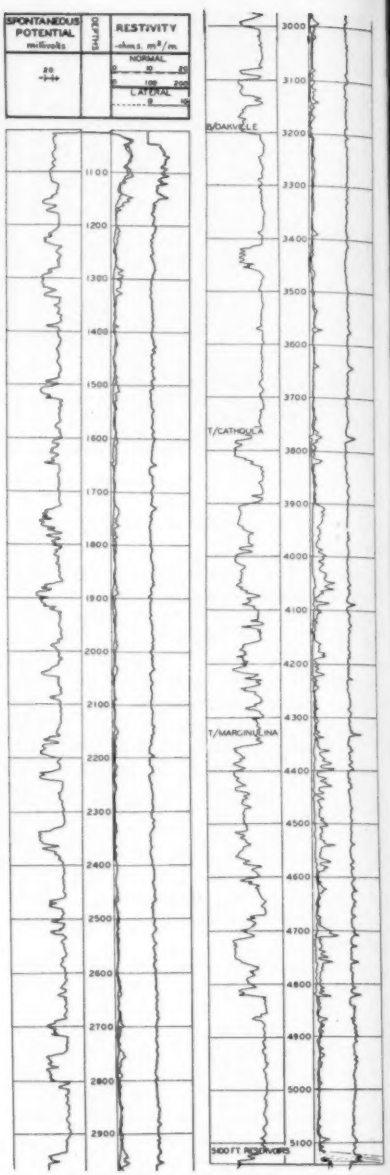
SUMMARY OF DRILLING OPERATIONS WEST SINTON OIL FIELD, SAN PATRICIO COUNTY, TEXAS
(Status as of December 14, 1950)

Locations	16
Rig up	1
Drilling	4
Completing	7
Total operations	28

SUMMARY OF OIL AND GAS DEVELOPMENT, SINTON WEST OIL FIELD
(Status as of November 1, 1950)

Field—	Zone	Avg. pay depth (ft.)	Date of discovery	Grav. crude	No. of wells	Total allow. B/D	Pro. unit	Basis of allocation Acre	Well
Sinton West	5,100	5,130	12-1-44	19.5°	21	2,722	20	75	25
Sinton West	°4,400	4,428	7-8-50	26.2°	4	350	20	75	25
Sinton West	†5,300	5,290	8-6-50	30.0°	1	120	20	75	25
Sinton West	Shallow‡	(¶)	(§)	Various	47	1,946	10	75	25
Total					73	5,138			

°Transferred from Sinton, West field on October 1, 1950. †Transferred from Sinton, West field on October 1, 1950. ‡Separated from Sinton, West field on April 1, 1948. ¶Various; from 1,375-3,372 ft. §Data not available.

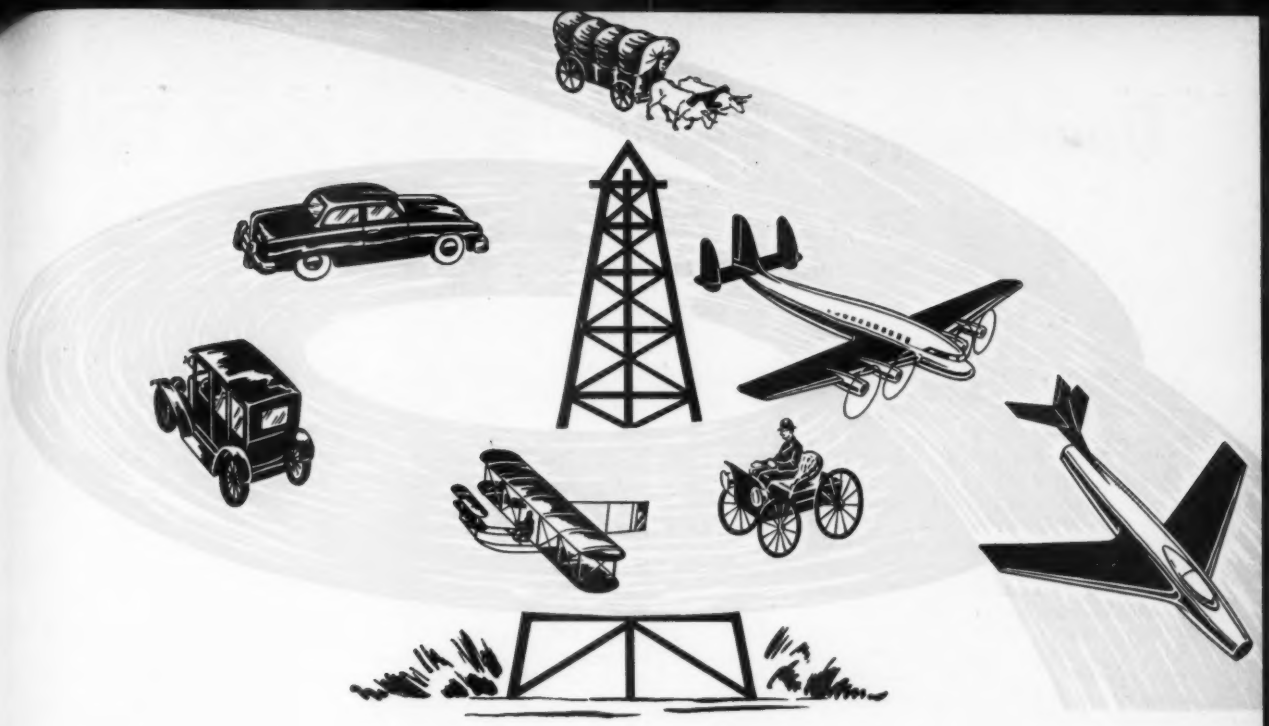


TYPE ELECTRIC LOG.—Plymouth Oil Co.'s A-8 R. H. Welder, 330 ft. from south line and 330 ft. from west line "A" lease, in Section 73, Eliza S. Welder subdivision, completed July 30, 1950, for initial potential of 122 bbl. of 30.2° oil per day through a ⅛-in. choke; casing perforations from 5,132-36 ft., total depth 5,140 ft. Mud resistivity 1.4 ohms m²/m. at 90° F. Electrode spacings: AM = 16-in. AM' = 64-in. AO = 18.5 ft.

Drilling Contractors

Among the drilling contractors working at West Sinton are C. G. Glasscock Drilling Co., Corpus Christi; J. & C. Drilling Co., Refugio; and Buzzini Drilling Co. of San Antonio. Modisett & Graham, Corpus Christi, operate a workover rig in the area.

(Continued on page 72)



Spindletop . . .

SYMBOL OF AN INDUSTRY THAT *changed the course of the world*

The Golden Anniversary of Spindletop commemorates 50 years of progress . . . 50 years that challenge the imagination. Spindletop signifies a growth unsurpassed by any comparable industrial development in the United States. Its discovery marked the dawn of a new era in oil production—the fuel oil era—and the dawn of a rich, new way of life for the world.

The fundamental reason for the phenomenal growth of the oil industry has been multiple but distinctly individual effort. This is signified by the large number of oil producing companies which have operated independently through the years. The relatively free economy of the industry is more important today than ever before.

SCHLUMBERGER

Schlumberger is proud to have contributed to, and been a part of, the industrial development resulting from the Spindletop discovery.

SCHLUMBERGER WELL SURVEYING CORPORATION • HOUSTON

Development Report: Scurry Reef Fields

Kelly, North Snyder, Diamond-M, and Sharon Ridge fields, plus Cogdell and Van Roeder, now stretch in a huge arc across three counties in West Texas

by Roy F. Carlson
West Texas District Editor

A LITTLE more than 2 years ago the most active concentrated drilling campaign of recent years was getting under way in Scurry County of West Texas. Since that time about 1,400 wells have been completed in the prolific Canyon reef of Scurry and neighboring counties. What in the beginning was a series of four rather widely separated fields was just recently said to be producing from a common reservoir by the Texas Railroad Commission.

These four familiar fields — Kelly, North Snyder, Diamond-M, and Sharon Ridge (Canyon)—stretch in a long arc that begins near the north line of the county and reaches to the west line of the county. Later developments have added a field on either end of this arc to make the present productive area about 45 miles in length. These newer fields are Cogdell on the north and Von Roeder on the west. The first of these is particularly large and is undergoing rapid development at the present time, spreading across the county line into Kent County. Von Roeder field is in Borden County. These two newer fields are at least temporarily separated from the major Scurry field by dry holes.

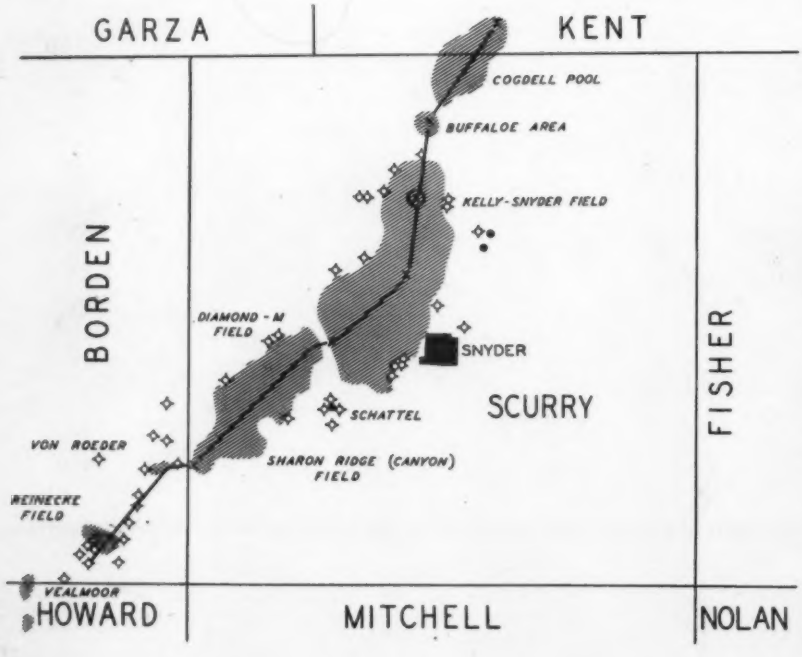
The four Scurry County fields are pretty well developed, with North Snyder and Kelly fields (later combined into Kelly-Snyder field) and Diamond-M field probably being over 90 per cent developed. The limits of the field are being rapidly defined by dry holes, particularly on the west and southeast sides. The Sharon Ridge portion of the field still is relatively unlimited, with several locations to be drilled in the north and west directions.

Effect of Fields' Production

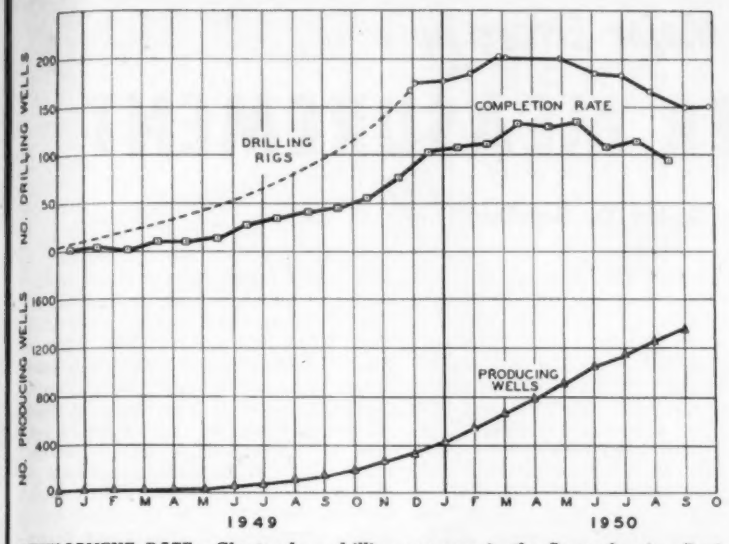
Production from these fields made a large impact on the over-all production of Texas fields, and was responsible in part at least for some of the production cutbacks made early in 1950. And with this tremendous production increase came expansion in every phase of the petroleum industry. Crude-oil pipe lines were built into the area very rapidly, taking Scurry oil to markets on the Gulf Coast and to the Mid-Continent and Great Lakes areas. Gasoline plants are being constructed rapidly, two partly being on stream, and another in the project stage. The gasoline and residue gas from these plants also find a ready market, the gas going to the West Coast and to local markets, and the products moving to widely scattered refineries or to L.P.G. suppliers.

Because of the huge accumulation of oil, and because of the large number of oil companies involved in a field of this size, an engineering committee was organized early in the field's history for the purpose of collecting data on the field. This activity has been spurred by close scrutiny of production and bottom-hole-pressure history of the field by the Texas Railroad Commission. Two field-wide pressure surveys have been run by the operators at the suggestion of the commission because of a high rate of pressure drop. The recent cutback in allowable production from this field came partly as a result of testimony on the most recent of these pressure surveys.

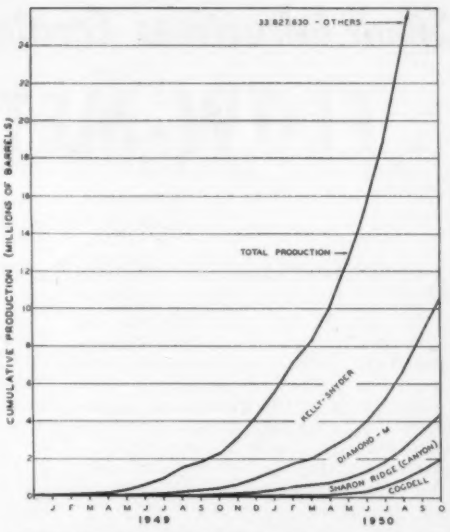
As mentioned before, the reef buildup in Scurry and adjoining counties forms a long arc. Vertically, the top of the reef mass varies widely. The high point of the reef is in the northern part of the field, in what was the North Snyder area. An accompanying drawing gives a section of this field, on which the highest point is —3,802 ft. Some wells are found that are higher than this; however, there is not too much difference. At any rate, in some of the wells a reef thickness of nearly 700 ft. is found above the assumed water level of —4,500 ft. As shown by the accompanying section of the reef, the reef top falls off rapidly to the north, and just a little more than 2 miles from the high point, a dry hole was



REEF FIELDS.—Shaded areas on map outline the present productive areas in the Pennsylvanian Canyon reef fields stretching across Scurry County, Texas, and into Kent County on the north and Borden and Howard counties to the southwest. Some of the gap shown will probably be drilled in the near future to make a continuous field on 40-acre spacing from the north boundary of Kelly-Snyder through the Sharon Ridge (Canyon) field.



DEVELOPMENT RATE.—Charts show drilling progress in the Pennsylvanian Reef for Cogdell, Kelly-Snyder, Diamond M, Sharon Ridge (Canyon), Von Roeder.



CUMULATIVE PRODUCTION.—Charts depict oil produced for individual reef fields, and total.

drilled that encountered the reef at the assumed water level.

To the south of the high point, the reef top falls off more gently and gradually veers to the west. The section shown generally follows this reef top along the line shown on the map. However, there appear to be pronounced breaks or saddles in the reef top at the points that formerly marked boundaries of Diamond-M and Kelly fields, and the boundary of Diamond-M and Sharon Ridge (Canyon) fields.

The combination of these several fields into one, has been disputed rather strongly by several operators. These people argue that although the fields may be connected on the surface by continuous drilling, subsurface communication is questionable. Evidence of this lack of communication is said to be given by differences in crude-oil analysis and by differences in reservoir performance. The aforementioned saddles lend some support to this argument. Added support is said to be given by the presence in the reef mass of rather impermeable zones which are found in various positions and which bear little relationship to the outlines of the reef.

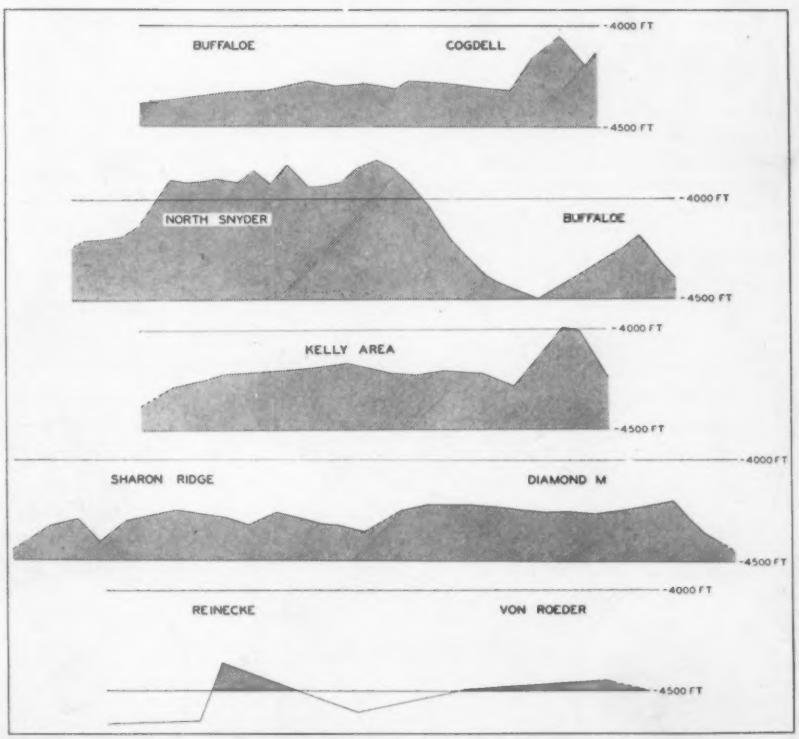
Erratic Nature of Fields

The fields or field are still too new, however, to be able to draw any concrete conclusion from available evidence. The predominant characteristic of the reef fields is and has always been its extremely erratic nature. This has proved true in its outline, its depth, effective porosity and permeability, its direction, the water level in the field and effective pay thickness.

The reservoir mechanism is a question that has been much discussed and its determination was another consideration behind the recent reduction in allowable from the field. This reduction was brought about because there is some suggestion of a water drive in the field, and it is thought that at a low rate of production the exact driving mechanism, or at least the presence of a water drive, might be determined. Many engineers, however, tend to ignore water drive as a reservoir mechanism, believing that the only effective mechanism at the present time is fluid expansion. On the other hand, other engineers point out that the presence of water in ever-increasing numbers of wells cannot be ignored.

The water level apparently varies all through the reef. It has been taken to be at about —4,500 ft. in the North Snyder area, —4,450 ft. in the

(Continued on page 78)



CROSS-SECTIONS.—These outline drawings show the amount of oil-productive reef pay above water table, for the individual fields (path and profile indicated on map on previous page).

Small Infractions Create Major Errors in

FLOW-METER MEASUREMENT

by John P. Squier*

ACCURATE measurement of fluids by the flat-plate orifice-type flow meter can be accomplished only by a combination of the correct application of the various formulas involved, and the proper construction and maintenance of the measuring equipment. In numerous instances equipment maintenance is a sadly neglected item in the measurement of natural gas. Inattention to the meter and recording apparatus has probably lost for one party and gained for another thousands of dollars in natural-gas revenue over a contract period.

The errors resulting from improper installation and maintenance are seldom compensating due to the physical characteristics of orifice-type measuring equipment, and either the buyer or seller usually absorbs a continuous loss depending upon the nature of the infraction.

The often misused word "meter" actually refers to the meter tube, orifice plate, and all necessary connections in conjunction therewith. The recording gage, usually called the meter, automatically plots the time, pressure drop across the orifice, and pressure of the flowing product from which the total flow for a given period of time is computed.

The accuracy in measurement of large volumes of natural gas has been made possible through the efforts of the manufacturers, American Gas Association, California Natural Gasoline Association, and hundreds of other technical groups as well as individuals who have expended thousands of hours of research and experiment to give the gas industry a set of volume-computation formulas, and standards which approach 100 per cent accuracy.

It is truly ironical that a buyer or seller of natural gas with some knowledge available will, through negligent maintenance or false economy in operating procedures allow errors in measurement that quite frequently are 20 to 50 per cent from correct. Such vague operating procedures seem to be merely a habit, probably formed from the depression days of the early thirties when some natural-gas prices were as low as $0.001 per thousand cubic feet.

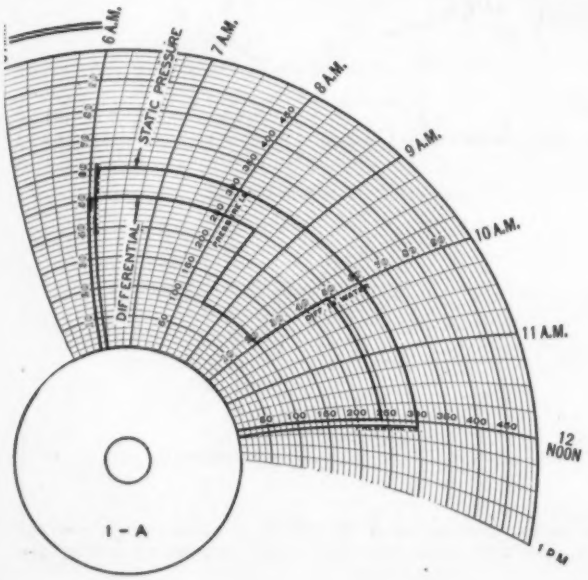
Today with values of natural gas at the well head ranging from $0.08 to $0.10 per thousand cubic feet upward, many operators view gas measurement in the same light as they did 20 years ago. Generally present gas-sales contracts specify price increases at regular 5 or 10-year intervals; therefore it appears that regardless of the national economical situation the value of natural gas will not go anywhere but upward.

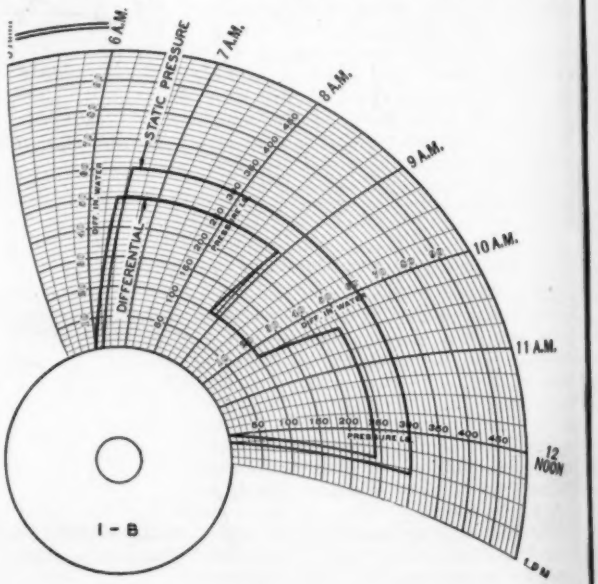
Higher pressures, gas-lift equipment, strict conservation measures, and many other factors make accurate gas measurement impossible by "old time" methods which many still use. Tests and observations over a 5-year period have indicated that small, and seemingly insignificant maladjustments to the recording gage are responsibile for more than 75 per cent of all errors in gas measurement. Such irregularities produce a continual insidious error which often escapes the scrutiny of the chart computer, especially if charts are being handled or read by personnel not thoroughly familiar with the operation of a recording orifice meter.

Differential Pen Arc

Perhaps the greatest source of error, as minor as it may seem, is caused by the altering of the differential pen arc to the lines of arc on the chart. This alteration is usually made by inexperienced personnel who do not realize the importance of correct pen alignment. The differential pen arm of a recorder is set at the factory to follow the arc lines on the chart from zero position to maximum range, and this adjustment cannot be changed without producing measurement errors.

Most of the differential pen alterations are due to the intentional bending of the pen by field men in order to produce a better flow of ink, whereas if instructions are followed on new instruments the pens will





*Gas measurement consultant, P. O. Box 6100, Dallas.

"REED Rock Bits help us keep down drilling costs"

...says Wayne Misener, owner of Wayne Misener Drilling Company, Carmi, Illinois.

REED
Liquid-blast
ROCK BITS

"As a drilling contractor, I have to keep a sharp eye on costs," says Mr. Misener. "I like **REED** Rock Bits because I can depend on them for fast drilling and good long runs. They help me keep down drilling costs."

The **REED** 2HS-1 Rock Bit does a good job drilling the hard formations encountered in Illinois fields.

Wayne Misener, (left) owner of the Wayne Misener Drilling Company and J. F. Kennedy, (right) driller for Mr. Misener, are shown with a **REED** 2HS-1 Liquid-Blast Rock Bit.

FOR GOOD LONG RUNS USE THE **REED** 'LB'

REED ROLLER BIT COMPANY

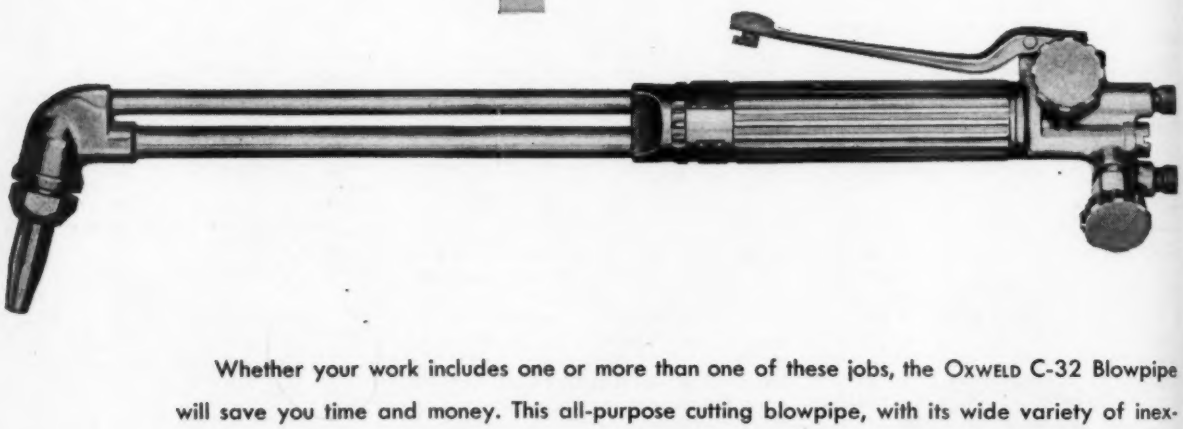
HOUSTON 1, TEXAS

NEW YORK LONDON BUENOS AIRES

2643

Do all this with *One* OXWELD Trade-Mark Blowpipe

- Cut steel up to 12 in. thick
- Bevel parts for fabrication or repair
- Gouge grooves of many sizes and contours
- Deseam semi-finished steel forms
- Cut risers and "wash" pads
- Prepare plate edges for welding
- Remove rivets and pierce holes
- Trim plate and structural shapes
- Powder-cut stainless steels and other oxidation-resistant metals
- Cut guided circles and straight lines
- Scrap obsolete equipment for profit



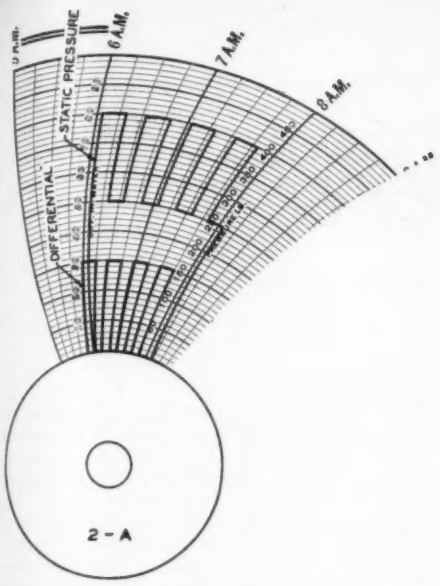
Whether your work includes one or more than one of these jobs, the OXWELD C-32 Blowpipe will save you time and money. This all-purpose cutting blowpipe, with its wide variety of inexpensive nozzles and attachments, easily handles these jobs—and many others—with outstanding efficiency, speed, and convenience.

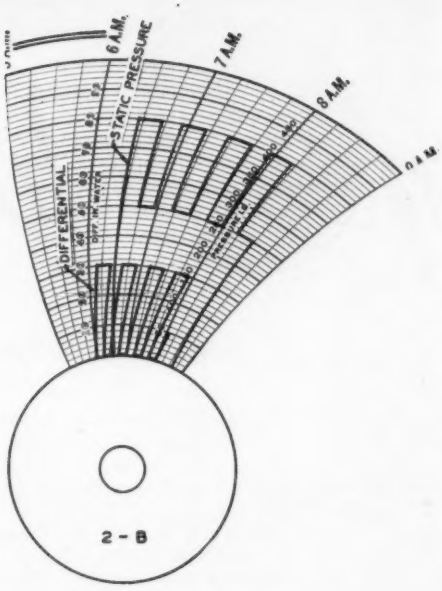
Like all OXWELD products, the C-32 is built to give you many extra years of economical and **trouble-free service** under every condition of use. Available in your choice of 3 lengths (20-, 26-, and 32-in.) and 3 head angles (75-, 90-, and 180-deg.) to suit your exact needs. Write or phone today for full information about this cutting blowpipe — or regarding welding blowpipes, regulators, cutting machines, or acetylene generators.

The terms "Linde" and "Oxweld" are registered trade-marks of Union Carbide and Carbon Corporation.

Linde Trade-Mark

LINDE AIR PRODUCTS
Division of Union Carbide and Carbon Corporation
30 East 42nd Street UCC New York 17, N. Y.
Offices in Other Principal Cities
In Canada: DOMINION OXYGEN COMPANY, LIMITED, Toronto





mark perfectly. When pens become dirty and fail to record properly, cleaning is a very simple operation by the use of a knife blade, or piece of paper.

Figs. 1A and 1B indicate a 6-hour flow period of two recorders measuring the same flow at a constant static pressure. Fig. 1A clearly indicates the differential pen to be in proper arc as reflected at 6 a.m. when the gas was turned on, and at 12:00 when the flow ceased. Fig. 1B indicates the differential pen to be out of arc as reflected by the recording when the differential pen returned to zero at 12:00 but had recorded flow until 12:25 p.m. At 6 a.m. when the gas was turned on it can be observed that the erroneous adjustment of the pen produced a recording indicative of a gradual increase in flow from 6 a.m. to 6:25 a.m. which is entirely different from the true picture as shown in Fig. 1A.

It is further noted that although the actual flow was for a 6-hour period, the differential on chart 1B was off zero and indicating flow for a period of 6 hours and 25 minutes. Based on assumption that the correct reading 1A is 1,000 M.c.f., the volume computed from erroneous recording 1B is 5.5 per cent higher or 1,055 M.c.f. It might be thought by some that in instances where a large number of meters are in service the outward and inward altering of pens would be offsetting to a certain extent. However, observations have proved that the majority of pen-arc infractions follow Fig. 1B, and always produce erroneous results higher than the true volume. This is due to the fact that the differential pen on most recorders contacts the chart either at right angles or an upward position, and the field man would quite naturally alter the pen downward in event of pen trouble.

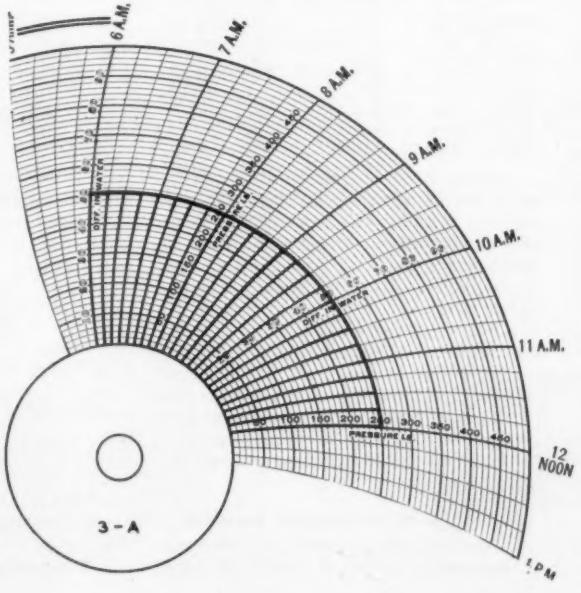
The time required to clean or replace a pen on a recorder is only a few minutes, and can be accomplished by nontechnical personnel. This further indicates the inexcusability of such a minor infraction. On the majority of flow recorders the adjustment of altered differential pens is a simple procedure if the field man will keep in mind that the pen point, although starting at the chart zero position, actually originates its travel from the exact center of the chart hub. This is shown by a dotted line in Fig. 1A.

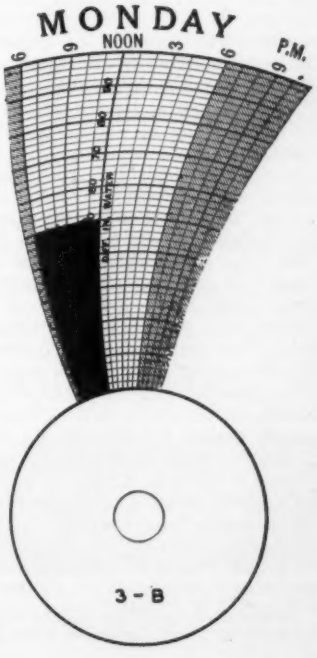
Static Differential Time Lag

Another minor irregularity which often produces large errors, and conjunctive to differential pen alteration, is the lag or space between the static pen and the differential pen. The correct computation of a flow chart involves the value of the differential pressure, and the static pressure during a known time interval. If the pens were both constructed to record true conditions at exactly the same instant, then both pens would have to follow the arc lines on a chart. This is impossible because the pens could not pass each other. Therefore meter manufacturers construct the static pen to a position which will allow passage of the pens by a very slight margin, creating a "lag" between the two pens at all times. This lag should be maintained at a minimum and considered by the party reading the charts except when the charts are computed on a standard Rockwell-Emco Integrator, otherwise considerable error in measurement may be introduced.

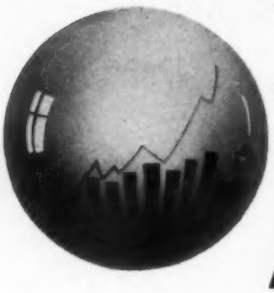
Fig. 2A indicates a section of a

(Continued on page 78)





Why Forecast?



by R. L. Erion*

LONG-RANGE forecasting of economic trends has been found to be of value by many types of financial and business enterprises. Banks and other financial organizations were probably the first group to make extensive use of this aid in charting their plans for growth and future operations. However, with each passing year an increasing number of organizations in other business fields have felt the need to provide their managements with assistance of this nature, in order that those charged with making important decisions would be better enabled to plan for the continuing operation of the various enterprises which are their responsibility.

The fact that the use of this management tool is continually growing and spreading throughout industry in general shows that it has been of definite value to those who have used it. Its use by any unit within an industry places competitive business at a disadvantage, for they are not cognizant of the facts that its user has developed. This results in bringing pressure to bear for an extension in use to those units which find themselves in a relatively unfavorable competitive position as regards the possession of economic facts and the trends which they indicate.

Importance and need of some type of forecasting is shown by its universal use on a small scale by everyone in the conduct of their daily affairs. If the housewife hears rumors of an impending sugar shortage, she immediately visits the corner grocery and buys a few extra pounds "just in case." A general feeling that there may soon be a lowering in prices causes the prospective purchaser to defer his contemplated acquisition of a new car or deep-freeze unit. Talk of a general rise in rents results in increased inquiries to the local real-estate broker by individuals wishing to purchase a house. All these actions are the results of weighing available facts, and from them estimating the possible future effects. Thus, the individual makes his personal forecast, and acts upon his resulting conclusions.

*Petroleum-engineering section, Socony-Vacuum Oil Co. of Venezuela, Caracas.

Use of Forecasts by Management

In the same manner, management is swayed in its decisions by current events, and from them attempts to forecast future trends. If an oversupply of its product is temporarily available, a forecast of some sort must be attempted as to whether this condition of oversupply will long continue. If the forecast, however arrived at, is in the affirmative, then prudence dictates that operations be curtailed, personnel reduced, and no immediate attempt be made to develop additional sources of raw materials. These are difficult decisions to make, unless well supported by thorough studies of all the factors that have led to, and may change, the status quo.

It has frequently happened that lack of complete information and failure to study all the implications of current events and their potentialities have resulted in incorrect decisions. Often an enterprise will discover that it has curtailed operations and allowed good workers to be dismissed just before a greatly increased demand for its products occurs. Conversely, lack of basic data and full knowledge of current trends has often resulted in drawing the wrong conclusion as to the course of future demand, with the consequent expenditure of large sums on the development of facilities, increase of inventories, and expansion of organization just before a drastic curtailment becomes necessary.

Management, in realization of the need for all possible sources of guidance in making the final decisions on which operations are based, turns to whatever sources of information may be available. Current events and political developments as reported by the press are noted, magazine articles by recognized authorities are passed from hand to hand, "on" or "off-the-record" conferences with others in managerial positions are held, and the services of various of the available commercial forecasting organizations may be utilized.

Statistics in Petroleum Industry

In the petroleum industry the type of statistical material gathered, and the purpose for which forecasts are prepared, will vary greatly in accordance with the branch of the industry in which the interested organization is engaged. Practically all of the larger companies in the industry have extensive economic departments, where a great mass of statistical and economic data is gathered and digested for use by various departmental heads in reaching managerial decisions. Since most of the larger units of the industry are integrated companies which supply refined and residual products to the ultimate consumer, it follows that the efforts of their statistical and forecasting departments have been directed mainly toward problems in the field of marketing.

Advantages to be derived from use of forecasts are by no means limited to its use in the field of marketing. Even those operators whose activities are limited for the most part to the production phase of the industry, as well as companies engaged in contract drilling and the various well-servicing fields, could profitably make use of forecasts in planning nearly every phase of their operations.

Usefulness in Oil Production

The following enumerates only a portion of the many activities and problems of operators in the production end of the petroleum industry, where proper use of forecasting can result in worthwhile financial returns:

1. Securing sources of additional outside working capital.—It has frequently happened that lack of foresight has resulted in necessity for a company to seek needed additions to its capital during a very unfavorable phase of the financial cycle. This may result in failure to sell the proposed issue of stock, or to obtain the needed bank loan. If the new capital is finally obtained it may only be at the cost of such exorbitant rates that a future payout is very doubtful. A forecast of future capital needs, and of the future state of the money market, would often permit securing needed capital at much more reasonable rates.

2. Programs for geological explora-

CP-365-RP Impact Wrench cuts down time on ammonia condenser maintenance.

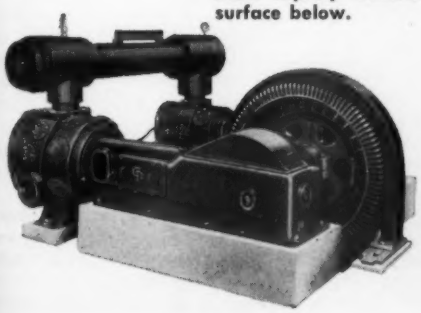
CP air powered tools that reduce down time

CP-403 Triple Scaler removes rust and scale rapidly without damaging metal surface below.

For refinery maintenance Chicago Pneumatic offers a range of air-operated equipment that includes a complete line of powerful impact wrenches; grinders, scalers and wire brush machines; chipping hammers; heavy-duty tube rollers; pumps; pneumatic winches; and scores of other time-saving tools.

CP Air Compressors, stationary and portable, are notable for dependability, low maintenance, economical operation.

Write for detailed information.



Class O-CE Two-Stage, Motor-Driven Compressor; capacities from 350 to 10,000 c.f.m.

CHICAGO PNEUMATIC TOOL COMPANY

General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

tions.—Long-range exploration programs planned on the basis of forecasts of probable cycles in over and underproduction of crude could result in large savings in exploration expense, and in greater returns from new discoveries.

3. Proper timing of field development.—This arises especially as concerns demands for certain types of crude, condensate, and gas.

4. Advisability of purchasing new rigs and of installing additional production facilities.—The drilling contractor, even more than the average oil-field operator, needs to forecast his equipment requirements. Rather than stack his rigs and watch their value dissipate through depreciation and obsolescence during a period of slack times, a drilling contractor may do better to sell a portion of his rigs at height of a boom if he can forecast an imminent drop in demand for his services, and let his competitor get a few extra contracts. And with some cash in hand he can, toward the end of the slack period, take advantage of his competitors' discouragement over stacked equipment to obtain additional rigs at bargain rates for use when his business picks up again.

5. Proper timing of expansion or contraction of over-all operations.

6. Purchase or sale of proven reserves.—The right type of forecasting might conceivably indicate the advisability of shutting down an expensive exploration program, and substituting instead a program of having a few evaluation engineers to investigate some of the properties of competitors, if a slackening in demand for oil is indicated. Some astute companies, small as well as large, have done very well in building up proven reserves by purchasing properties at bargain prices during periods of general discouragement among the oil fraternity. Money saved by curtailing exploration efforts, which give only the **possibility** of finding new reserves, which may not be needed for some time even if found, could go a long way toward purchasing proved reserves provided there were proper timing of the purchase effort. The forecasting of capital needs, and provision for capital availability, as enumerated in No. 1 above, is important in this connection.

The sale of marginal producing properties could also result from a forecast that indicates a period of prospective low crude prices.

7. Employment level. — Consideration of whether or not an expansion or contraction of the organization in certain parts or as a whole, is advisable; present and future demands for, and availability of, common and skilled labor and of trained engineers and executives.

8. Training program for present and new employes. — Considerable sums may be represented by the value of experience accumulated by employes long with an organization, and in the investment spent on the training of new employes, which will be lost if these employes are separated from the organization. It is a costly proposition to initiate a large-scale training program during an apparent long-term period of expansion, only to find a year or so later that curtailment must be faced and that the trained employes, together with most of the training organization, are no longer needed.

9. Labor problems.—There is little hope of developing high morale and loyalty to the company in an organization which has a large personnel turnover due to large expansions and contractions in over-all operations. Accurate forecasts would tend to smooth out the greatest fluctuations, and would prevent layoffs when, actually, expansion will soon be needed, or large increases in the organization when a curtailment will soon be necessary.

10. Warehouse inventories and stocks.—Whether they may safely be reduced, or should be increased.

11. Effects of governmental policies and of decisions of various regulatory bodies as determined by the political and economic outlook.—The imposing or relaxing of proration schedules,

What's your wall scraping job? Removing mud cake?...Increasing diameter for gravel packing? Cementing? *You can do the job faster and better —for less—with the Grant Hydraulic Expansion Wall Scraper!*

Its simple, rugged construction insures long, trouble free service. Blade expansion by pump pressure is controlled entirely from the rig floor. Seven scraper body sizes cover the range from 4¼" to 36". Three types—bull-nose, bottom hole and diamond point—will meet your specific scraping requirements.

Your nearby Grant branch is ready to furnish the Wall Scraper you want for your next job, and a service man stands ready to assist in running and operating the tool—day or night. *Call Grant—write direct for Bulletin 20 giving full details—or see the Grant Section in the Composite Catalog!*

Proven Grant Tools—Used Where Performance Counts

Hydrostatic Bailers	Bulletin No. 11
Liner Pullers	Bulletin No. 14
Pressure Releases	Bulletin No. 15
Casing Scrapers	Bulletin No. 17
Underreamers (Rotary)	Bulletin No. 24
Underreamers (Cable Tool)	Bulletin No. 27
Hole Enlargers	Bulletin No. 38
Reamers	Bulletin No. 43
Hydrostatic Perforation Cleaners	Bulletin No. 50
Dump Bailers	Bulletin No. 51
Roller Cutter Shale Bits	Bulletin No. 54
Sand Pumps	Bulletin No. 55
Well Cleanout Equipment	Bulletin No. 57
Wall and Bottom Hole Scrapers	Bulletin No. 58

Write for Descriptive Bulletins on these Grant Tools

GRANT OIL TOOL COMPANY
Subsidiary: MacClatchie Manufacturing Company

Main Office and Plant
2042 E. Vernon, Los Angeles 11, Calif.
Branches Throughout California and The Mid-Continent

BUILT TOUGH
To Take Plenty of Punishment!

NORRIS *"ROYAL"* Solid Type HAMMER HEAD SUCKER ROD WRENCH . . .

Drop-Forged Alloy Steel, Machined and Hardened Jaw, Perfect Balance

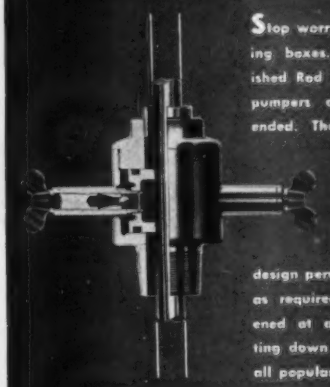
NORRIS *"BUMP-UP"* Hinged Type SUCKER ROD WRENCH . . .

Drop-Forged, Heat-Treated Alloy Steel Jaw; Perfect Balance; Opening Machined to Exact Dimensions

AT YOUR FAVORITE SUPPLY STORE

Norris Brothers, INC.
ROBINSON · ILLINOIS

Positive Seal Under Toughest Conditions

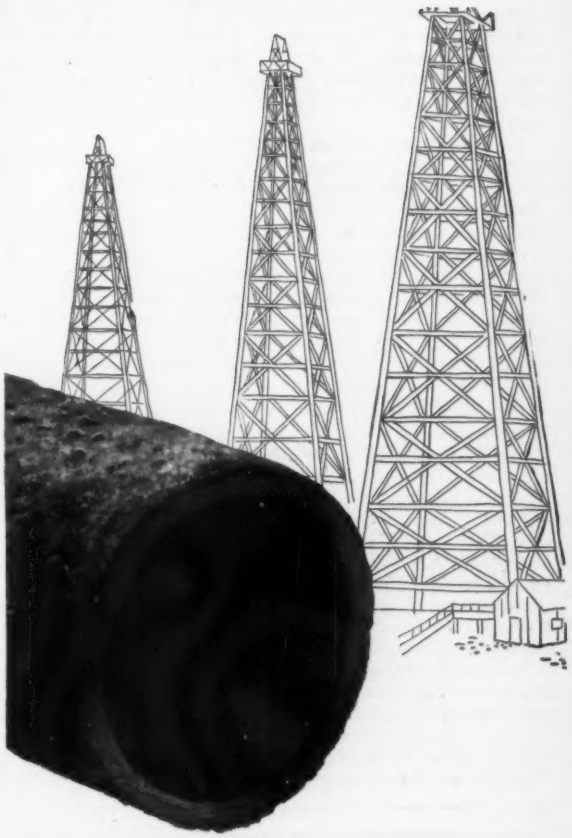


Stop worrying about leakly stuffing boxes. Install Kinzbach Polished Rod Stuffing Boxes on your pumpers and your worries are ended. They are plastic packed with a floating, self aligning gland and hold positive seals under the toughest conditions. Unique design permits plastic to be added as required or seal to be tightened at any time without shutting down the well. Available for all popular sizes of polished rods.

KINZBACH TOOL CO., Inc.
P. O. BOX 277 • HOUSTON, TEXAS

EXPORT OFFICE:
74 Trinity Place,
New York, N. Y.

KINZBACH TOOL CO INC



Here are some Facts on . . .

CORROSION INSURANCE

One of the most economical ways to insure storage tanks, pipelines and buried metal structures against the harmful effects of corrosion is to install Federated Magnesium Anodes.

The cost of Federated anodes is only a fraction of the cost of the losses preventable by their use. Deterioration of structures, loss of bulk materials handled, time, labor and materials to replace damaged equipment, can in many cases be avoided at very low cost by the use of magnesium anodes.

Federated Magnesium Anodes are a high quality product. Each has an electro-galvanized spiral-wound steel core chemically bonded to the magnesium alloy to permit perfect electrical contact between the metal of the anode and the metal to be protected.

Federated Magnesium Anodes are readily available in every standard size; special sizes can be made to order quickly. Technical assistance on corrosion problems is available at your request.

See Federated first for magnesium anodes . . . for any non-ferrous metal or alloy.

Federated Metals Division
AMERICAN SMELTING AND REFINING COMPANY, 120 BROADWAY, NEW YORK 5, N.Y.

and the trend in tariff regulation, exclusion of foreign products, and regulation of transportation charges, wages and hours, and an infinite number of other matters can have far-reaching effects on the affairs of a company.

12. Trends in monetary policy and restriction of foreign exchange.—Those companies engaged in foreign operations are especially vulnerable to changing trends in these matters.

A more detailed look at some operational problems encountered in even the smaller oil companies may give an idea of what return might reasonably be expected from a forecasting program set up for other than sales purposes.

The oil industry goes through recurring cycles of overproduction and shortage (actual or only superficial), and the money and effort expended in exploration work vary with these cycles. It is the usual practice to go all out on exploration work during periods of high demand for crude, and cut drastically during periods of overproduction. Since it usually takes from one to several years for a large exploration program to show results, it frequently happens that an all-out exploration program only begins to show returns at about the time petroleum demand slackens. If, as the result of good forecasting, exploration programs could be scheduled to reach their maximum a year or so in advance of a peak in demand, rather than a year or two after the peak and just before a general slackening in demand, a much faster payout would be realized on the large sums invested in exploration work.

Testing the Structure

After a promising structure has been located, it must be tested. At times the test, if productive at all, will prove the presence of a grade of crude for which there is little, or at least a slackening demand. If the new field is in a region lacking in production facilities and outlets to a marketing area, such as a field in a remote portion of the Rocky Mountain area or in foreign operations, management may be forced to defer development until market prospects for that particular type of crude turn upward. However, after the elapse of some time, when the market does improve and it is decided to develop the field by further drilling, installation of field facilities, and possibly construction of a pipe line to provide an outlet for production, it may take 1 or 2 years to bring the field into production. If a forecast could reveal to management the trends 1 or 2 years in advance, the necessary development work on such fields could be scheduled so as to take advantage of the rising demand from the start of the upward trend rather than much later. In this way a much earlier return and a faster payout could be realized on the large capital sums necessary for field development.

Suppose, for example, that heavy demand for crude causes an operator to embark on an exploration program, which, after a few years and the expenditure of, say $5,000,000, results in a promising discovery. If the exploration work has been carried out during a period of high demand, when many other operators were also straining every effort to increase their production, the initial development of the new find may fall in a period of temporary overproduction and falling crude prices. The operator will then hesitate to spend further money on development because the immediate market is unfavorable. In this situation he sees that in capital tied up at, say 4½ per cent, his play, now in moth balls, is costing him $225,000 per year. Possibly with better forecasting, at the cost of a fraction of that $225,000 per year, he could have avoided his predicament.

It is realized that geology and geophysics, being inexact sciences, cannot come up with finds, and economic ones, at that, on schedule. However, the expectation behind all exploratory efforts is that discoveries will be made, and made within the time limits determined by the funds budgeted

CONTROL
SCALE and CORROSION

IN ENGINE JACKETS,
COMPRESSORS, COOLING TOWERS — Wherever Water Is Used

• • • Increase efficiency of equipment by maintaining scale-and-corrosion-free water side surfaces • • • Prevent expensive shut-downs and replacements.

Wright CHEMICALS

WRIGHT CHEMICAL CORPORATION
Specializing in Water Conditioning
GENERAL OFFICE AND LABORATORY—615 W. Lake Street, Chicago 6, Ill.
OFFICES IN PRINCIPAL CITIES
Sole Distributor of Nelson Chemical Proportioning Pumps

for the purpose. It is therefore felt that the comments in the preceding paragraph are valid.

Again, scheduling of field development to coincide with the beginning of periods of higher crude prices would show large returns on the expenses necessary for making the required forecasts. Posted prices of 38° crude have been quite stable since the end of 1947, but over the years the tendency is to vary, and this is especially true for the prices paid for low-gravity crude. An operator who would schedule the development of a new field so that production could begin at the start of a rising trend in crude prices could show a considerably higher return on his investment than the one who finally achieves production at some later date, possibly only a comparatively short time before a price decline. If an increase amounting to 10 cents per barrel could be averaged, the gain on a field producing 1,000 bbl. per day would amount to $36,500 in 1 year. A sum of this size would go far toward maintaining a staff engaged in forecasting efforts.

The principle of attempting to schedule initial operating dates in accord with forecasted economic trends applies to activities other than field development. For instance, the operator who completed construction and placed in operation his natural-gasoline plant by the beginning 1948, when the price of natural gasoline finally rose to 8½ cents per gallon, realized high returns on his investment. Contrast his results with those of the operator who, seeing the returns obtainable under this high price, hastily planned and constructed a plant which reached the operating stage by the end of 1948 when prices began their fall to a later 5 cents and then 4-cent level.

As one more example, let us consider the possible benefits to be derived from forecasting in the case of warehouse stocks. The capital tied up in warehouse stocks can reach surprising figures, especially for companies operating abroad where considerations of distance from sources of supply and the difficulties of procurement are of major importance. To name only one class of material, it is common practice for operators, even those operating in the United States, to maintain a 6-month to 1-year supply of casing on hand. The completion of 20 wells per year with an average depth of 7,000 ft. would require in the neighborhood of $350,000 for casing and tubing, depending on the type of casing program. The interest of this single warehouse item, at say, the rate of 4½ per cent, amounts to $15,750 per year. If a forecast of the availability of casing supplies could enable the safe reduction of warehouse stock from a 12-month to a 6-month basis, the resultant saving in interest alone would do

(Continued on page 74)

Aluminum Covered BUTLER Steel Buildings

This Butler Building, with lightweight, sturdy, reflective aluminum covering, is used as oil company reclamation shop at Tulsa, Okla.

Permanent, fire-safe shelter for loading pumps, provided by Butler Building at Wichita Falls, Tex.

Rigid frame, truss-clear construction gives maximum bulk storage in Tulsa, Okla., oil company warehouse.

Standardized steel buildings with these outstanding advantages of Butler Aluminum Covering: has high reflectivity for insulation against summer heat, winter cold; requires little maintenance . . . gives longer-lasting service; makes a lightweight structure, yet assures sturdy, durable construction; can be easily taken down and re-erected. And there are other big Butler advantages; rigid-frame, truss-clear design; low cost, fire-safe, weathertight. Butler Buildings—proved in oil field use for more than 40 years.

BUTLER

BUTLER MANUFACTURING COMPANY

Kansas City, Mo.
Galesburg, Ill.
Richmond, Calif.
Birmingham, Ala.
Minneapolis, Minn.

MAIL COUPON TODAY

For Prompt Reply, Address Dept. OG21
7464 E. 13th St., Kansas City 3E, Mo.

*Send full information about Butler Aluminum Covered Buildings for use as*_____

Name_____

Firm_____

Address_____

City_____ **Zone**___ **State**_____

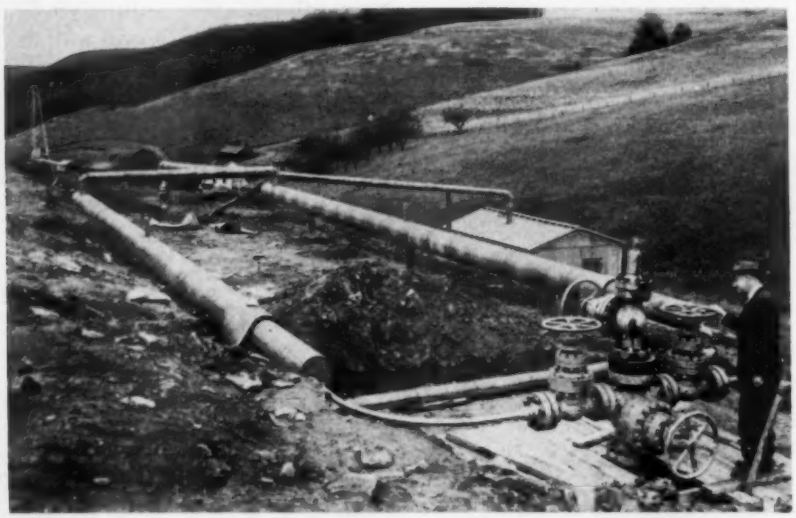
Before the discovery of gas in Clinton County, the town of Renono, Pa., led a tranquil existence, except for an annual migration of thousands of hunters for deer and bear in the mountains nearby. Today it is a bustling hub for drilling activities. Bank deposits jumped $45,000 in 10 months after the first gas well was discovered.

Illustrative of the terrain at Leidy gas field is Godfrey L. Cabot Gas Co., Inc., 1 Jacobus. Well site is 300 ft. above level of Kettle Creek, in foreground.

PENNSYLVANIA HOT SPOT

High-pressure-gas drilling at Leidy field

LEIDY gas field is the most important development east of the Mississippi River in recent years. The field, located in Clinton County, Pennsylvania, was discovered in January 1950 by Leidy Prospecting Co. 1 Dorcie Calhoun, a rank wildcat based on a hunch. The discovery well was completed for an estimated open flow of 20,000,000 cu. ft. of gas daily from penetration less than 1 ft. of Oriskany sand. Now with this discovery well a year old there are over 60 completions or active operations in the field which is already 5 miles long and 1½ miles wide. Tests being drilled to the south of the present center of the field indicate that the currently proved area may ultimately be doubled.



Here is the biggest producer in Leidy field to date. New York State Natural Gas Corp. 1 Dougherty was completed for 50,000,000 cu. ft. of gas daily. Examining the christmas tree is C. A. Nicklas, of Jones & Laughlin Supply Co., which furnished the pictures on these pages. Of special interest are the heat-exchanger units required to prevent freezing of the high-pressure gas.

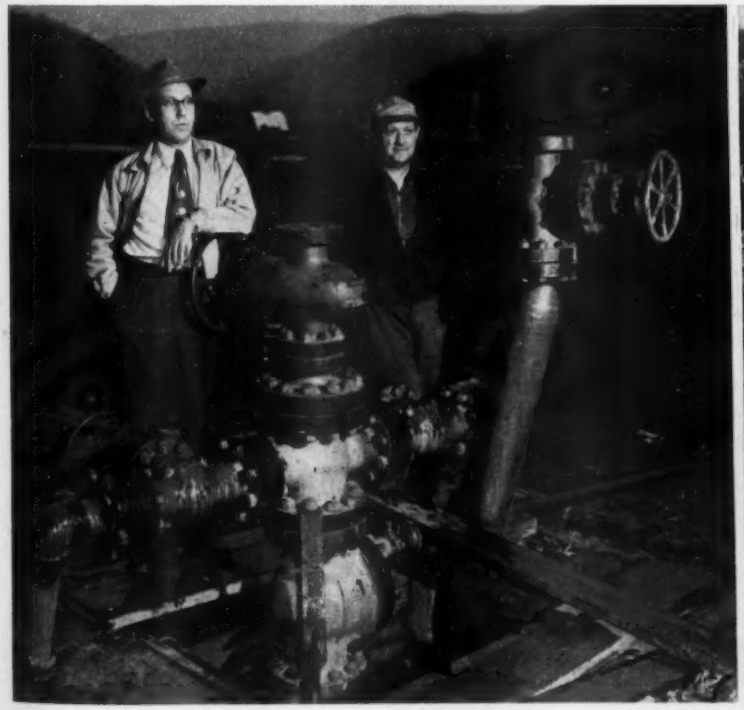
The Oriskany sand is found at depths of 5,700 to 6,400 ft., depending on the surface elevation of the well site. Pressures have averaged 4,200 psi., much higher than normal for this depth. The presence of these record pressures can be explained by the impervious 2-ft. cap rock which, despite tremendous erosion in the area, was able to contain the maximum pressures developed in the Oriskany. The larger wells produce their maximum open flow as soon as first contact with the Oriskany is made. Smaller wells are sometimes drilled as much as 9 ft. into the sand to increase their production. Shallow gas found from 400 to 1,500 ft. at some locations is cased off in most instances.

All holes are drilled with cable tools which may take 24 hours to cut a foot of the impervious cap rock mentioned above.

A previous reference is "New Oriskany Sand Gas Pool," November 23, 1950, issue of The Oil and Gas Journal.

Full force of the 4,200-psi. rock pressure is available in Leidy field the instant the drilling tool breaks through the 2-ft. layer of cap rock overlying the gas-bearing Oriskany sands. This picture shows the geyser that is formed when a well is brought in.

Leidy Prospecting Co.'s second well caught fire after blowing tools out of hole when the Oriskany sand was penetrated. Fifteen minutes after photo was taken, the derrick buckled into a heap. After 4 days, flames were killed with explosives by Paul Adair.

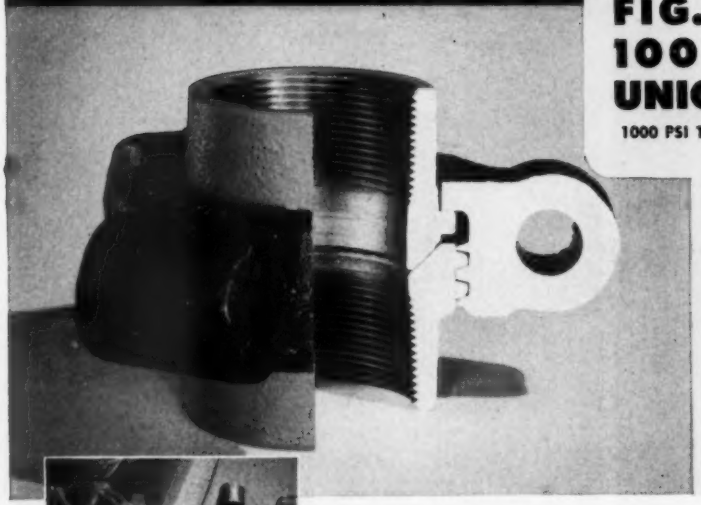


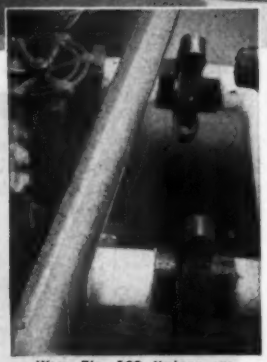
Shown here at the discovery well of Leidy field are J. W. Gullborg and Dorcie Calhoun. Drilled with a makeshift cable-tool rig designed for 2,500 ft., this well produces 20,000,000 cu. ft. of gas daily from the Oriskany sand at 5,659-60 ft. Location for the wildcat was based on Calhoun's hunch. Gullborg is president of Leidy Prospecting Co., which financed drilling of the well.

Welded and ready to be laid in its ditch is this section of the 45-mile pipe line built by New York State Natural Gas Corp. to carry gas production to users in Syracuse and Rochester. Its cost was $2,000,000.

EXACTLY RIGHT FOR THE JOB!

WECO FIG. 100 UNION
1000 PSI TEST





Weco Fig. 100 Unions are exactly right for connecting steel mud tanks.

Fig. 100 Unions are exactly right for fuel line connections.

Exactly right for simplifying valve installation maintenance.

MEANS 100% EFFICIENCY in Make-up, Service, Economy

Designed for 1000 lb. test pressures, Weco Fig. 100 Unions are exactly right for separator and tank connections, fuel and water lines, manifolds, headers and other connections on lines with working pressures of approximately 500 lbs.

The ball and cone seat makes a positive, leak-proof seal. Fig. 100 Unions are made of tough and durable malleable iron . . . withstand repeated use in hard service. You can make them up fast with a hammer blow on the bar nut lugs, or with a bar through the holes in the nut.

For longest service and greatest economy on low pressure line connections use the Union that is exactly right for the job . . . WECO FIG. 100 UNION. Available in sizes 2" through 8".

WECO

WELL EQUIPMENT MFG. CORP.
Subsidiary of Chiksan Company
HOUSTON 1, TEXAS
Exclusive Sales Representative Outside Mid-Continent Area
CHIKSAN COMPANY
Brea, Calif. Chicago 3, Ill. Newark 2, N. J.
Export Sales CHIKSAN EXPORT COMPANY Brea, Calif. Newark 2, N. J.

Manufacturers and Distributors of Oilfield, Refining, Marine and Industrial Equipment

West Sinton Field

(Continued from page 56)

Drilling engines.—Glasscock uses a bank of three 145-hp. Waukesha NK gas-butane drilling engines at his Rig 7 on the townsite. J. & C. Drilling Co. employs a bank of three 260-hp. General Motors Twins on its Rig 5 offsetting the townsite development.

Mud pumps.—Glasscock uses 7¼ by 14-in. and 6½ by 12-in. mud pumps on his Rig 7. J. & C. has installed 8 by 20-in. and 7¼ by 15-in. pumps on its Rig 5.

Mud tanks.—An ordinance passed by the city of Sinton requires all drilling contractors to use steel mud tanks on wells drilled within the city limits. Glasscock uses two 6 by 8 by 40-ft. tanks. All reserve mud is hauled away.

Derricks.—The former contractor has mounted a 127-ft. steel mast on the rig now working on the townsite. The latter contractor uses conventional 136-ft. steel derrick with 30 by 30-ft. base. Eight-foot steel substructures are used on both rigs.

Blowout preventers.—A Cameron QRC blowout preventer is used by Glasscock and mounted during rigging-up operations on the 10¾-in. surface pipe. In one case, a 13⅜-in.-size unit was used with an adapter. Little trouble is occasioned by high-pressure gas sands during drilling operations.

Hole size.—A 15-in. hole is cut with a fish-tail bit to a depth of about 950 ft. where the 10¾-in. pipe is set. The pipe is hydraulically tested under pressure of 1,500 psi. Wells drilled on the townsite use about 600 sacks behind the surface string. A 9⅞-in. rock bit is used to drill out the plug and cones are used the rest of the way. After contract depth is reached, the long string of 5½-in. pipe is set and cemented on bottom with 400 sacks. The well is then gun perforated for completion.

Side-wall coring.—Prior to running pipe, conventional electric logs are run, and a series of cores cut with side-wall sampler opposite the principal reservoirs. A limited amount of drill-stem testing is done through the casing.

Days to drill.—An analysis of a group of completions in the townsite area indicates the number of days to drill average 34. This includes rigging up and surface-pipe setting time.

Radial Faulting

Intricately dissected.—The effect of radial faulting on development is highly important at West Sinton. The anticline is intricately dissected with a series of normal faults exhibiting displacements ranging from 80 to 440 ft.

Use of electric-log cross-sections is important in accurately tracing the position of the Miocene and Frio sands on either side of fault planes.

Acknowledgments

The author is indebted to Jimmy Storm, superintendent, and Gus Hellman, pusher, both with C. G. Glasscock Drilling Co.; J. D. Stanley, pusher, J. & C. Drilling Co.; and T. E. Johnson, assistant superintendent, Southern Pipe Line Co., for data used in preparation of this article. Thanks are also expressed to Halliburton Oil Well Cementing Co., for information.

BOOKS

LABOR CONDITIONS IN THE OIL INDUSTRY IN IRAN. Prepared for the information of the Petroleum Committee of the International Labor Organization, Geneva, Switzerland. 87 pp. 60 cents.

This little volume provides a comprehensive picture of the oil areas, the labor force, recruitment and training, conditions of work, housing, social services, trade-union situation, labor-management relations, and other interesting factors having to do with the production of oil in Iran.

A
UNITED SUPPLY & MFG. CO.
Your Ace in the hole
on every oil field supply problem!
That's your conveniently located United Supply Store . . . it's a good feeling to know that you can get the supplies you need, but it's a better feeling to know that you can get them in a hurry. Remember, United stands ready to help you solve any supply problem . . . Be sure to call on us!
Courtesy
Service
Dependability
UNITED SUPPLY
AND Manufacturing COMPANY
TULSA, OKLAHOMA
Stores in Kansas, Oklahoma, Texas, Louisiana, and New Mexico

Why Forecast?

(Continued from page 69)

much to carry the cost of a forecasting section, to say nothing of releasing a large sum of capital for use in some other phase of company operations. Additional benefits could, of course, accrue from appropriate action in placing material requisitions based on forecasts of an impending rise or decline in purchase price of items being stocked.

The total benefits, measured in terms of dollars, which could be derived from a program of forecasting as applied to operations of the average organization in the petroleum industry are difficult to determine. It is not unreasonable to assume that they could reach a figure equal to 1 per cent of total company expenditures. If this is granted, then for each million dollars of yearly budgeted expense, management would be justified in spending $10,000 (on a 1-year-payout basis) for the purpose of obtaining the guidance on current and long-range problems which a good forecasting section should provide.

Management, once it has decided upon the advisability of establishing a forecasting section within its organization, must determine just how wide a range of forecasting activity it desires. Naturally, the greater the number of fields it wishes covered, the greater will be the mass of information and statistics which must be gathered, digested, and used in arriving at final conclusions.

In a very small organization, and for limited use, one person might comprise the entire forecasting section, but for anything but the most superficial studies a larger staff would be required. Ordinarily at least one individual would be kept busy simply gathering, compiling, and perhaps graphing all available current material and statistics, while a more experienced individual studied the resulting picture and from it drew conclusions with which to answer management's frequent questions on widely separated problems. The forecasting section would probably start in a small way, but with continued proof of its value and as a result of increasing confidence by management in its forecasts, it would probably grow in scope and become a very valuable tool for solving some of management's most pressing problems.

Sources of Data

Sources of data upon which to base forecasts are many. Naturally, the necessary basic data and statistics will vary widely with the nature of the forecast which is to be made. One source close at hand is the various trade journals, which are becoming increasingly economic minded, and are improving their coverage of industry-wide statistics and trends. Various departments of the Government are fruitful sources of pertinent statistics, and many governmental departments make and publish their own forecasts covering specified fields. For the petroleum industry, such associations as the A.P.I., the A.I.M.E., and many others contribute to available data.

Events and trends in the national and international scene are mirrored in the daily press and in certain factual magazines. In this connection, it should be borne in mind that while it is necessary to take into consideration current public opinion, these opinions, especially **publicly expressed** opinions, are shaky ground upon which to base a forecast. The last presidential-election upset is an example. Rather, the effects of a later reaction, if present public opinion proves to be incorrect, must be taken into account. Of course, a forecast based on public opinion or upon the ideas of one's associates, if later proved completely erroneous, at least carries the dubious consolation of the forecaster that he had plenty of company in his mistaken assumptions!

Dependable Data

Future events always result from an integration and climaxing of past and present trends. A forecast of the future, in any field of human activity, is no better than the data upon which it is based, and the honesty with which the data is interpreted. Wishful thinking and unfounded fears have no place in the preparation of an intelligent forecast. Many past forecasts in various fields have later appeared ludicrous, as witness the upsets in predictions concerning some not-so-ancient national elections, and the dire threat of the overproduction of petroleum that was to have occurred just after the late great war. Past failures should be looked upon simply as resulting from faulty techniques, both as to the collection of pertinent data and in their proper interpretation.

It will usually be found that a forecast will prove more useful if prepared by persons who are familiar with the problem or situation for which the forecast is being made. For forecasting financial trends the ordinary trained economist would be the logical choice. However, for dealing with forecasts as applied to operational problems of producing organizations in the petroleum industry, an individual having extensive knowledge of field operations and their problems, as well as possessing training along economic lines, should be of greater value.

It is an unfortunate fact that forecasting is still a very inexact art. The best efforts of the forecasting staffs of various government agencies and the largest oil companies fail to chart the short-term trend of petroleum demand over the past few years. In spite of past failures, however, there are abundant returns to be obtained from persistent and properly directed efforts to forecast trends affecting all phases of operations in the petroleum industry.

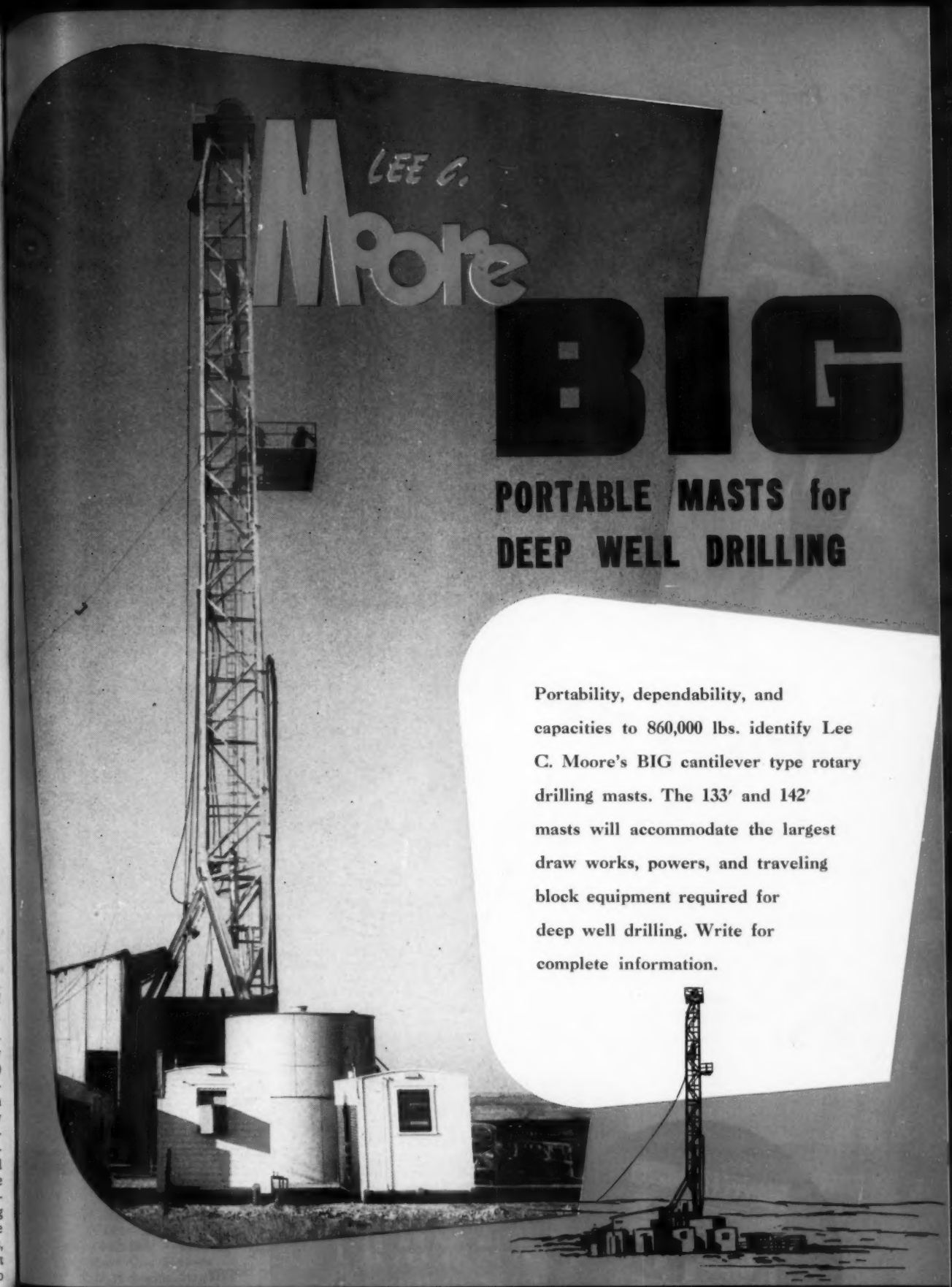
Among those unfamiliar with the possibilities of forecasting methods, and the advantages to be derived therefrom, there is a tendency to deny the possibility of making forecasts that are of any real value. It is the writer's contention that there is not a single important decision made by management that is **not** based on some kind of forecast. It may be only a snap judgment based on the personal experience of the person making the decision; it may be the result of conferences with others, who are influenced by their past experience and ideas of future events, it may be based on a more detailed study, but in any event some sort of forecast of the results to follow must be reached before a decision can be made on any important matter.

The choice, then, is between using some casual approach, or attempting to set up a planned, well-organized, adequately staffed section devoted to obtaining the necessary basic data and the preparation of calculated studies on the problem at hand. The latter approach could at the very least serve as a check by management to make certain that no pertinent factor had been overlooked in its own estimate of future potentialities.

Forecasting, if applied only on a day-to-day basis, is probably of little value. The greatest returns from forecasting can be obtained by using it in solving long-term problems. This makes it of the greatest value only when it is tied in with long-range planning.

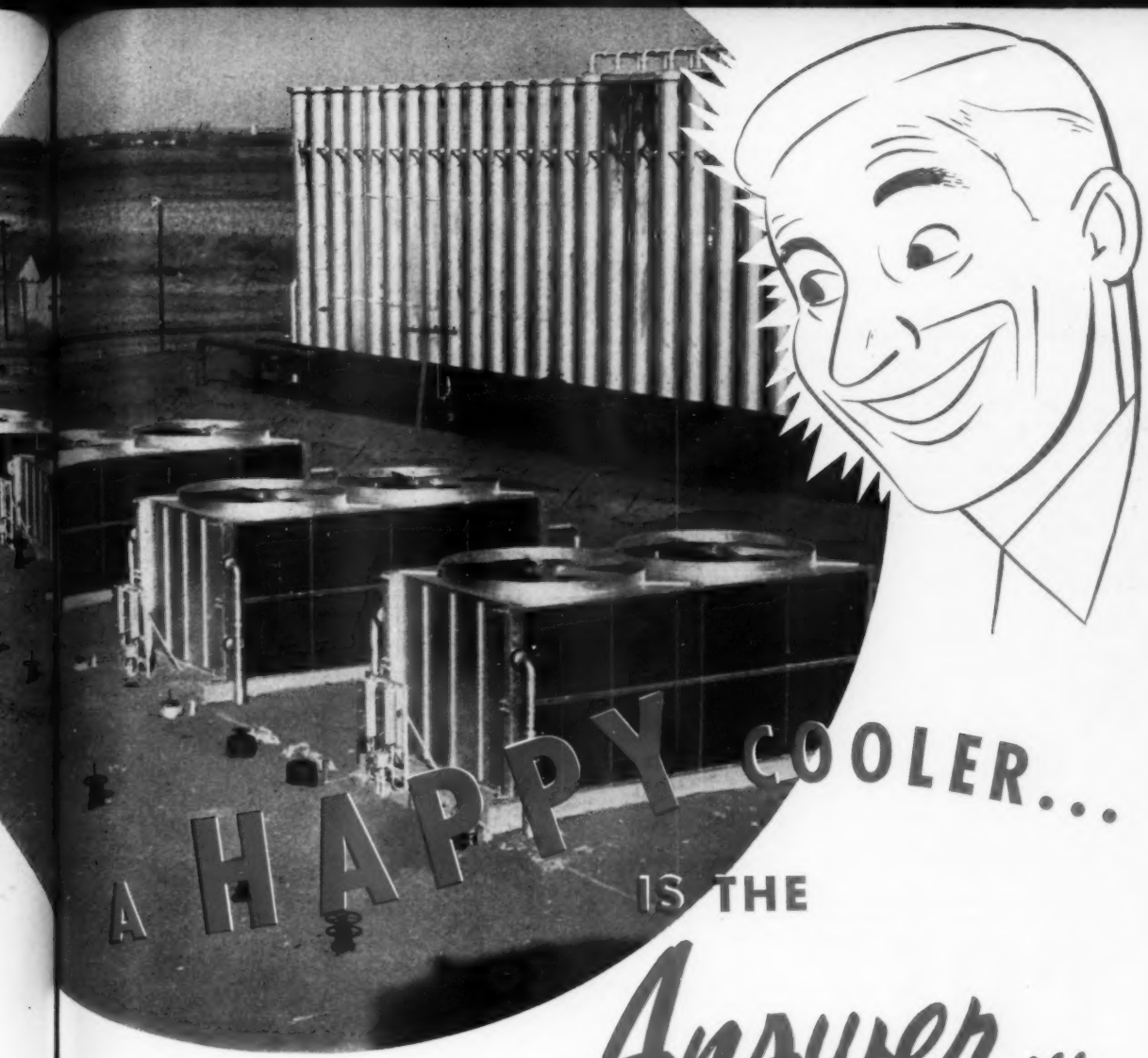
Many of the smaller operators in the petroleum industry are on a more or less hand-to-mouth existence, with never very many certain producing locations waiting to be drilled, trusting that this year's exploration program will furnish locations for next year's drilling. Comparatively few organizations have surveyed their field of operations and made specific plans, with definite goals, for the size of their operations 5 and 10 years hence.

Relatively few of the present companies operating in the oil industry have had a corporate existence of 50 years, which is only natural considering that the industry itself is less than a hundred years old. It is safe to say that of those organizations now operating, the leaders in the second hundred years of the Petroleum Age will be found among those who take the long-range view. By means of forecasting and by the careful planning of their operations they will be able to surmount the many difficulties, and weather the critical times, that will cause the disappearance of so many from the ranks of their competitors.


LEE C.
Moore
BIG
PORTABLE MASTS for
DEEP WELL DRILLING
Portability, dependability, and capacities to 860,000 lbs. identify Lee C. Moore's BIG cantilever type rotary drilling masts. The 133′ and 142′ masts will accommodate the largest draw works, powers, and traveling block equipment required for deep well drilling. Write for complete information.
LEE C. MOORE CORPORATION
TULSA • DALLAS • HOUSTON • MIDLAND • SHREVEPORT • WICHITA • CENTRALIA • PITTSBURGH
Export Office — 9 Rockefeller Plaza, New York 20, N. Y.

V 4 9 3 7
JA 18 51
UMI

Two Happy Cooler bulletins are just off the press and are yours for the asking. They contain valuable technical data on Happy Standard Line Coolers. Models 26, 40, 60 and 80. Write for your copies today. They will serve as a handy guide in solving your cooling problems.



A HAPPY COOLER... IS THE *Answer...*

PROBLEM: To modernize a 24 year old gas pipe line station and to eliminate the difficulty of obtaining water for cooling purposes.

SOLUTION: Happy Cooling engineers recommended this practical solution: Three jacket water coolers and two gas coolers. For flexibility six fans were furnished for engine cooling and four fans for gas cooling. Each fan driven by a two-speed electric motor. To assure long life, heavy-duty, individually finned, round tubes, rolled into box headers were used.

THIS PRACTICAL SOLUTION:

- Eliminated cost of continued water well drilling.
- Reduced cost of pumping make-up water.
- Reduced cost of water treatment.
- Eliminated water scaling problems.
- Improved station appearance.
- Simplified maintenance and operation.

SERVING FOR...

BWH Industrial Hose
Happy Coolers
Rubber Belting
Leather Belting
Bull Dog V-Belts
Sure-Grip Sheaves
P & H Engine Starters
Safety Switches
Happy Pumping Units
Power Transmission Equipment

The HAPPY COMPANY

Formerly HAPPY BELTING COMPANY

TULSA, OKLAHOMA

32 HAPPY YEARS

BRANCH STORES:

Seminole ..... Oklahoma
Odessa ..... Texas
Salem ..... Illinois
Ellinwood ..... Kansas

DISTRICT REPRESENTATIVES:

Dallas ..... Texas
Kilgore ..... Texas
Wichita Falls ..... Texas
Wichita ..... Kansas

Scurry Reef Fields

(Continued from page 59)

Kelly area, at about —4,510 ft. in Von Roeder field, and at about —4,430 ft. in Sharon Ridge Canyon. These levels, however, will at best represent averages because in most cases, water has been found higher or oil has been found lower in the reef.

Reserves for Canyon Reef

Reserve figures in the Canyon reef reservoir are also a matter of much conjecture. The eccentricity of the reef that has been mentioned before caused reservoir engineers to be extremely cautious and it is possible to get almost as many reserve figures for the reservoir as there are engineers. The lack of exact information on reservoir thickness, water level, porosity, and permeability make it necessary to take a lot of assumptions that are not necessarily correct and probably err on the low side. One figure that has been mentioned recently concerns only the Kelly-Snyder area and gives this area either 2,760,000,000 or 2,400,000,000 bbl. of stock-tank oil originally in place, depending on whether the figures were arrived at through volumetric calculations or material-balance calculations.

If either of these figures is correct (based on 8 per cent porosity, 25 per cent connate water, and an effective reservoir thickness of 282 ft., or on past production) it is reasonably safe to assume that one early estimate of a 5,000,000,000-bbl. reserve is high. This assumption is indicated by the smaller pay thickness in other parts of the field, and their smaller areal extent.

The accompanying drilling and completion rate chart shows that the high point in drilling has been passed in the Scurry area, and so, consequently, has the completion rate passed its maximum.

Flow-Meter Measurement

(Continued from page 63)

chart covering intermittent flow. It is noted that during the flow periods the static pressure is 400 psi., and when the flow ceased and the differential pen returned to zero the static pressure dropped to 250 psi. The time lag in this instance is set to synchronize with the pens on an integrator, and correct results will be obtained.

Fig. 2B shows the same flow registered on a recorder with incorrect time lag occasioned by the differential pen being altered, and this chart reflects a pressure of 250 psi. when the gas is flowing, instead of 400 psi. as shown by correct recording in Fig. 1A. The error in this instance is approximately 20 per cent, and is representative of a very possible condition.

It may be concluded that theoretically no flow-meter recording gage using the circular chart renders an absolutely true picture of flowing conditions for a definite period due to the necessity of a slight time lag between the pens which record the two variables. To obtain true volume computations it is necessary that this lag be taken into consideration especially when there is fluctuation of both static and differential pressures. The manual chart computer must allow for this lag in his readings.

When charts are read on the integrator the meter pens should be set with the same time lag as the machine whereas when the charts are traced the time lag is automatically incorporated into the computations. The integrator, a sensitive and highly accurate computing device, is manufactured with a time lag between the static tracing pen and the differential tracer of 15 minutes on a 24-hour chart when both pens are at the differential zero position on the chart. On 7-day charts the lag at zero is equivalent to 1 hour and 45 minutes.

On meters in service where pens have been bent out of alignment the differential pen should first be adjusted for proper arc, and the static pen should then be adjusted for proper lag depending upon the method by

SAFE . . . no exposed live parts

Designed for controlling the electric motors of oil well pumping units, "NEMCO" Oil Field Motor Starters are—

1. Safe! All live parts are completely enclosed by an interlocked inner door, preventing access without first opening disconnect switch. In addition to providing maximum safety to personnel, these starters are—
2. Thoroughly field-proven! "NEMCO" pioneered the original packaged Oil Field Motor Starter in 1939—eleven years ago.
3. Built in a wide range of sizes, and available with an unusual variety of control devices.
4. Can be furnished with "NEMCO" Time Delay Undervoltage Relay which automatically re-starts motor after power failure, in accordance with a predetermined, adjustable time delay.
5. Easily mounted and serviced. Furnished complete with pole-mounting hardware.

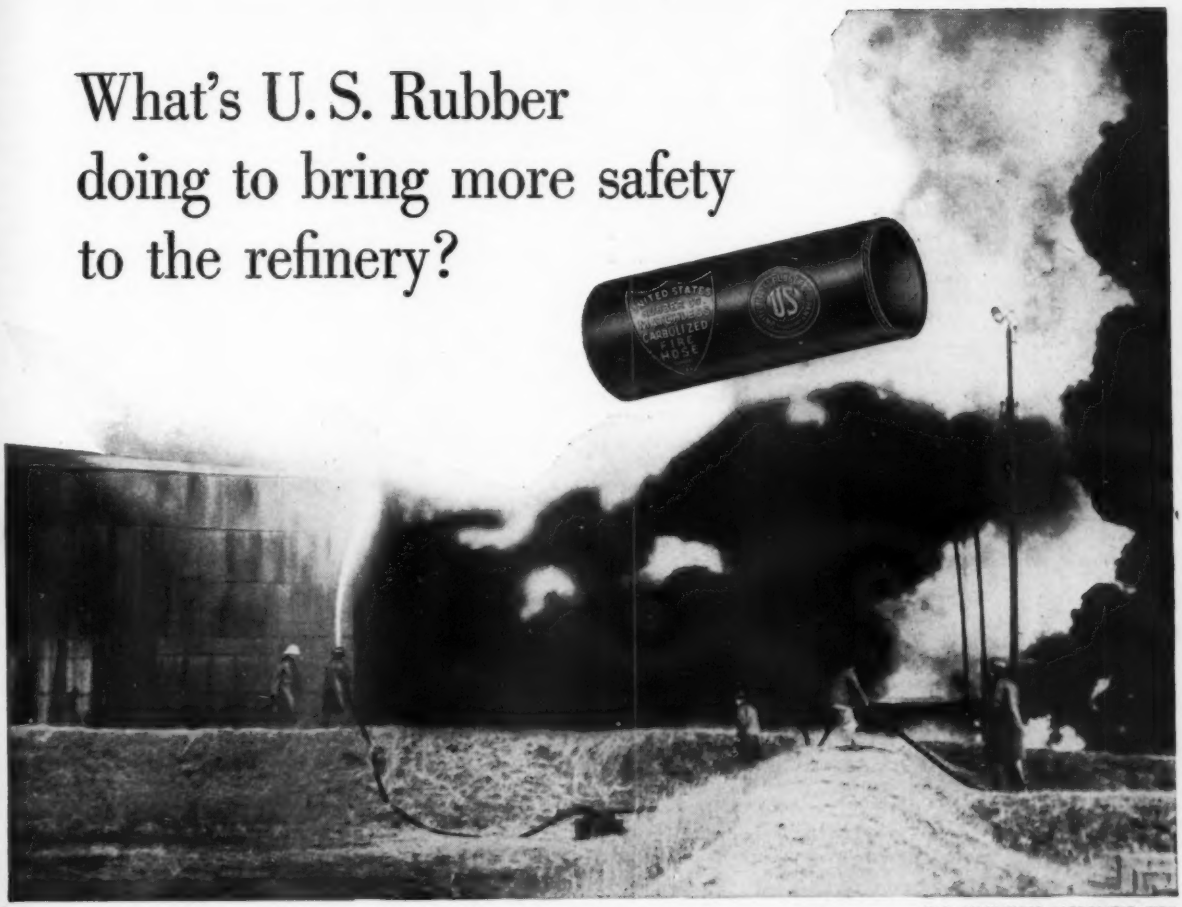
WRITE FOR COMPLETE INFORMATION

NELSON Electric MANUFACTURING CO.

217 North Detroit TULSA, OKLAHOMA Telephone 2-5131

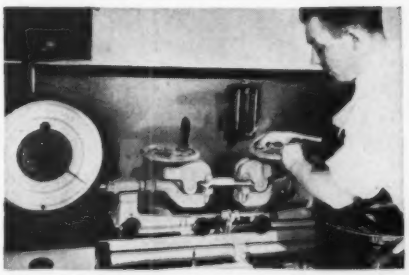
"NEMCO" Class 500 Oil Field Motor Starter with Lightning Arrestor, Time Clock and Hand Reset Relay. Outer door is in raised position. Interlocked inner door gives "dead front."

What's U. S. Rubber doing to bring more safety to the refinery?



U. S. MATCHLESS CARBOLIZED FIRE HOSE has new flexibility, lightness and pressure resistance, while retaining its desirable "soft" characteristics. The tube is of the best extruded rubber, assuring an extremely smooth waterway. Every length tested to 480 pounds pressure before shipment. Black or white cover and capped ends of high-grade neoprene to combat acid, fumes and burning sun rays.

"U. S." standards in safety and durability usually exceed those of safety boards and protective statutes. That's why "U. S." has won a preferred place in modern, well-protected refineries. United States Rubber Company engineers are constantly developing new applications for hose, making hose do things it has never done before. Over one hundred years of experience and great stocks of research data enable them to solve almost any hose problem presented. Tell them about your hose problems. For further information write to address below:



TENSILE TESTING MACHINE in United States Rubber Company laboratory. Samples from every roll of carcass material used in steam hose are tested for strength, stretch and other performance qualities. On a special outdoor rack, constantly flexed hose is tested by passing high pressure steam through it for thousands of hours.

U. S. MATCHLESS STEAM HOSE is burst-proof. When, after long service, the rubber finally fails to resist the action of the steam, the steam *leaks* through the wall structure, indicating a replacement should be made. It is excellent for steam supply lines from docks to oil barges and for fire protection in refineries.

PRODUCTS OF

U.S.RUBBER
SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

ROCKEFELLER CENTER, NEW YORK 20, N. Y.

It Pays to Use...

Strata-Seal

TRADE MARK

to combat lost circulation of drilling mud

Recently made available to the oil industry, Strata-Seal has already proved to be one of the most highly effective, *practical* developments to combat lost circulation and returns.

So effective is Strata-Seal's bridging action, that even in a number of extreme cases, it has restored circulation and saved abandonment of wells.

Check these advantages

1. Strata-Seal protects investments by making possible reclamation of wells about to be abandoned.
2. Eliminates or reduces rig down time.
3. Savings resulting from ability to screen.
4. Has no detrimental effect on viscosity, water content and gel strength of drilling fluid.
5. Is easily added to mud.
6. Does not interfere with coring operations.

Available through leading mud service companies.

Strata-Crete

TRADE MARK

...an aggregate to lighten your cement slurries

More and more oil men are discovering that cement slurries made with Strata-Crete give them these four valuable benefits — at low cost.

1. Strata-Crete substantially lightens the cement slurry.
2. With Strata-Crete, higher columns of cement can be pumped with lower pressures.
3. Strata-Crete with cement facilitates perforation.
4. Strata-Crete helps materially to reduce lost circulation of cement.

Strata-Crete is used with high early, slow set, or standard oil well cement. It is available through leading oil well cementing concerns.

Sales Offices in Principal Oil Centers

SEND FOR SAMPLE VIALS
NO OBLIGATION

Feel the lightweight.
See the uniformity.

GLC STRATA-CRETE SALES

Great Lakes Carbon Corp., Dept. 122
18 East 48th St., New York 17, N.Y.

Please send sample of ☐ Strata-Seal
☐ Strata-Crete and more information.

NAME.....

COMPANY.....

ADDRESS.....

.....

which the charts are computed. Again it is mentioned that the errors produced are not offsetting because the time lag is either correct or too great; it is seldom too small. It is necessary, however, that operators who change from manual chart computation to mechanical integration adjust the static pen on the meter for the correct time lag of 15 minutes at zero.

Maintain High Differentials

The changing of an orifice plate in a flow meter sometimes becomes a problem due to lack of foresight when the installation is made. Lack of cutoff valves, bypasses, and other causes sometimes prevent a conscientious field man from obtaining better measurement. The flow through an orifice meter is computed basically from the square root of the pressure variables, and because of this square-root calculation it is necessary that the differential, as well as the static recording be maintained as high as possible on the chart. Since the differential is evaluated primarily by the size of the orifice plate, this record is often neglected due to the work involved in changing to a different size.

A high differential recording magnifies the accuracy of a gage, and minimizes linear errors in the instrument. As an example assume a 100-in. differential recorder measuring 1,000 M.c.f. per hour with a differential of 5.0 in. of water. Assume that due to any one of a number of reasons the differential is registering 1.5 in. low. On a recording of 3.5 in. the error in measurement would be

$$\sqrt{5.0} \text{ against } \sqrt{5.0\text{-}1.5}$$

or 16.3 per cent, and instead of reading 1,000 M.c.f. per hour the rate would be erroneously indicated at 837 M.c.f. per hour. If the same error in the recorder is prevalent, but the orifice plate is of correct size to produce a differential of 60 in. of water, the resultant error is

$$\sqrt{60} \text{ as compared with } \sqrt{60 - 1.5}$$

or 1.3 per cent. Consequently if the differential was 80 in. the error in measurement would be further reduced to 0.9 per cent. It will be observed that those who value their gas will invariably maintain high differentials, and high static pressure recordings in relation to the range of the instrument.

24-Hour Charts vs. 7 or 8-Day Charts

Increasing values of natural gas make the use of 24-hour clocks in recorders necessary when either of the variables fluctuates at intervals of 10 minutes or less, if accuracy is desired. The mercury-type flow recorder was originally designed to record the characteristics of flow on a chart revolving once each 24 hours.

Eventually operators learned that when the flow and pressure were constant, reasonable accuracy could be obtained by the use of a 7-day clock, thus eliminating considerable field and office expense. This is still true so long as the clock is accurate and the variables fairly constant. However, today over 50 per cent of 7-day clock applications are believed to be questionable, and greater accuracy could probably be obtained by measuring the flow on a 24-hour clock for 1 day and multiplying the result by seven to obtain the weekly volume. Of course this would be impossible in view of present strict regulations in regard to constant measurement.

The use of 7 or 8-day clocks where 24-hour clocks are needed is an example of magnified errors, and all errors in time, integrator tracings, meter errors, and other irregularities are increased 7 or 8 times

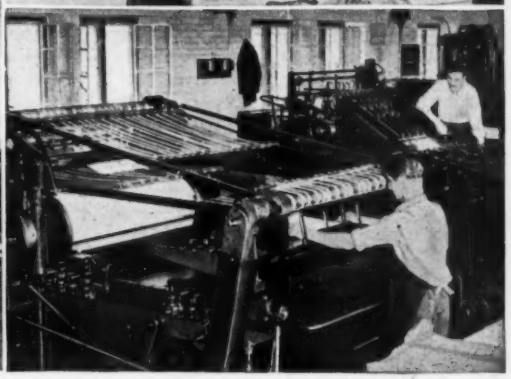
Fig. 3A represents a period of gas flow from a well through a separator wherein at 15-minute intervals there is a momentary shutoff of gas when the liquid is discharged. The volume on this chart is truly represented by an almost constant flow of 50 in. of water differential. The same flow recorded on a 7-day chart is shown by Fig. 3B. The method most generally used to read the 7-day chart would evaluate the average differential between 20 and 25 in. In this instance the computed volume would be 29 to 37 per cent lower than the true volume.

Some operators even attempt to measure gas-lift deliveries with a 7-day chart, whereas the intermittent flow of this type of delivery is only accurately readable with a 24-hour clock in approximately one application out of five. If a 7-day clock is acceptable, then there can be no objection to the use of 8-day clocks since the difference in time between the two is only 14 per cent whereas there is a 700 per cent time difference between 24-hour and 7-day clocks.

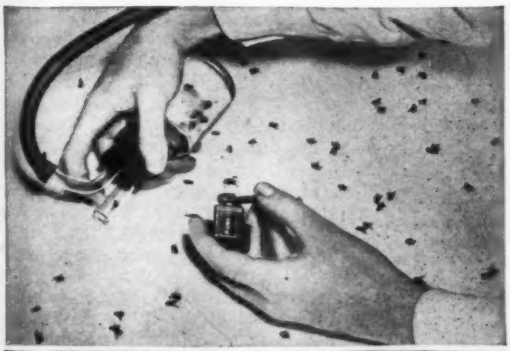
It is significant to observe that most measuring installations used by transmission companies, and other operators who derive most of their revenue from the purchase and sale of gas, are equipped with 24-hour clocks. One advantage of the 24-hour clock overlooked by many operators is that it serves the same purpose as a time box and necessitates a visit by the field man to the premises at least once a day.

A few measurement-minded operators use a 7-day clock, and require the meter attendant to zero test the gage each day while in practically the same amount of time the chart could also be changed and greater measurement accuracy obtained with a daily clock. Such a procedure saves only the cost of computing six extra charts per week which in most instances is an insignificant item compared to the amount lost through erroneous readings.

Behind the Scenes



Auxiliary services of all kinds are involved in Anglo-Iranian's world-wide oil operations; such as dry-docks, laundries, employees' newspapers in Persia, insecticide-testing and scientific film-making in England. They all contribute towards Anglo-Iranian's oil production—255,000,000 barrels in 1949.



101.9

First and Biggest

oil producers in the Middle East since 1912, Anglo-Iranian Oil Company and its associated companies also operate twelve refineries in Europe, Middle East and Australia; their sales organisation includes major marketing or supply interests in Europe, Asia, Africa and Australasia, with international ships' bunkering and aviation services.

BP

This shield is the symbol of the world-wide organisation of

ANGLO-IRANIAN OIL COMPANY, LIMITED

Britannic House, Finsbury Circus, London, E.C.2.

REPRESENTATIVE IN U.S.A.

W. D. HEATH EVES, 610 Fifth Avenue, New York 20, N.Y.

PROGRESS in METALS

by W. L. Nelson
Consulting Engineer

Brittle Sigma Phase of High-Temperature Alloys

ONE of the troublesome developments in the application of certain high-temperature stainless steels such as the 27 chromium 20 nickel steel used in the dehydrogenation of butane into butadiene is the precipitation of a so-called "sigma phase" constituent which may impart brittleness. Sigma phase is a hard, brittle, nonmagnetic solid solution. It forms in alloys containing large amounts of chromium and nickel (usually over 25 per cent of chromium), upon long heating in the temperature range of 950°-1,250° F. It has been briefly discussed on the April 1, 1948, issue of this page.

Considerable work is progressing on the problems created by the existence of this sigma phase, and a symposium was therefore organized by the American Society for Testing Materials to report on the progress and the trends. Eleven papers were presented at the June 26, 1950, annual meeting of the A.S.T.M. at Atlantic City, but only brief mention of a few of them can be made here.

In "Some Notes on the Structure and Impact Resistance of Columbium-Bearing 18 : 8 Steels After Exposure to Elevated Temperatures," W. O. Binder showed that the impact resistance of 18 : 8 steels containing up to 2 per cent columbium is not significantly decreased by long heating in the carbide precipitation temperature range. This good toughness is associated with the limited formation of sigma phase.

G. N. Emmanuel gave a paper, "Sigma Phase and Other Effects of Prolonged Heating at Elevated Temperatures on 25 Per Cent Chromium-20 Per Cent Nickel Steel," in which he reported that, somewhat unexpectedly, the room-temperature tensile and yield strengths of type 310 stainless held for prolonged periods of time at elevated temperatures. However, he believes that this was probably due to insufficient sensitivity of measurements. On the other hand, the elongation and reduction area values showed a definite decrease with increasing amounts of sigma, indicating the adverse effect on ductility.

V. T. Malcolm and S. Low in their paper, "Sigma Phase in Several Cast Austenitic Steels," made the important point that the sigma phase problem is not a metallurgical one alone. They said that the engineer must recognize it is also a design problem.

In general, sigma phase has not been reported in iron-chromium alloys having less than 25 per cent chromium. However, age-hardening effects in alloys containing less than this percentage of chromium suggest that sigma may be present. J. J. Hegler reported that such is the case. In his paper, "The Formation of Sigma Phase in 17 Per Cent Chromium Steel," he shows that by using cold work and extended heating periods at 1,050° F, sigma phase is formed in Type 430 stainless steel (17 per cent chromium).

Over half of the production of heat-resistant alloy castings is in types containing sigma phase, provided the compositions of the alloys are not properly controlled, according to J. H. Jackson's paper, "The Occurrence of the Sigma Phase and Its Effect on Certain Properties of Cast Fe-Ni-Cr Alloys." The presence of sigma in such castings, while not always detrimental, should be generally avoided. Jackson said that an alloy which appears to be achieving greater popularity is the HK type (cast 26 chromium, 20 per cent nickel). It is less susceptible to formation of sigma than the HH alloy. Of the other currently produced heat-resistant casting alloys, most contain at least 33 per cent nickel and not over 21 per cent chromium and are thought not to be susceptible to sigma formation.

Cement-Covered and Cement-Lined Pipe

CEMENT-LINED pipe has long been used as a means of avoiding internal corrosion in pipe used for such services as water flooding, brine disposal, and oil gathering lines for corrosive crude oil. The U. S. Bureau of Mines in its Information Circular IC 7314, by Peter Grandone, (Reclaiming Used Pipe for Oil-Field Operations with Cement Lining) discussed the developments to that time (about 1945). Six manufacturing plants were in operation. The Bureau of Mines paper and other investigations were reported on this page in the July 14, 1945, issue of The Oil and Gas Journal.

It is obvious that cements are more resistant to most types of corrosion than steel, and if a reasonably thick cover can be made to adhere tightly to a metal pipe, the lined or covered pipe will last much longer than regular pipe. Likewise, lighter pipe can be used because the extra thickness that is customarily allowed for corrosion is no longer necessary.

Recent reports of the operations and plant of H. C. Price Co., of Bartlesville, Okla., indicate that the manufacture and use of cement-covered pipe is practical. A plant has been installed at Harvey, La., near New Orleans, and large-diameter cement-encased pipe is being used in the marsh and swamplands of the Gulf Coast. Normal difficulties with manufacture, handling, transportation, and laying all seem to have been surmounted and the ingenuity of the Price organization indicates that future difficulties can be handled in stride.

No Galvanic Effect on Casing When Using Nickel Steel Tubing

THE increasing use of 9 per cent and 5 per cent nickel steel in tubing for condensate oil wells has prompted tests by the laboratories of several companies to investigate the possibility of galvanic corrosion which might damage the carbon-steel casing. The results of one such study are described by W. H. Stewart, corrosion engineer of Sun Oil Co., Beaumont, Tex., in the July issue of Corrosion.

An elaborate laboratory equipment was used, which simulates conditions in a well in which the annular space between the alloy-steel tubing and carbon-steel casing is filled with drilling fluids or salt water. Thirty-inch lengths of 2-in.-diameter tubing of 5 per cent nickel-steel, 9 per cent nickel-steel, and J-55 carbon-steel tubing were used, the last-named material being run as a control. The respective tubes were set inside 17-lb. N-80 casing, with the bottom sealed and insulated with tar.

In one test series the space was filled with drilling mud, and in another with salt solution (50,000 p.p.m.). The top of the liquid was covered with a layer of oil to prevent oxygen intrusion and evaporation.

A direct-current amplifier was coupled to a recording milliameter and a potentiometer. Electrodes were brazed to both casing and tubing.

A 90-day test under these conditions demonstrated that there is no galvanic corrosion effect resulting from use of either the 9 per cent or 5 per cent nickel-steel tubing. There is an initial current flow of 9 ma. which drops to zero in about 24 hours, due to the dissolved oxygen being used up during that time. No current increase was indicated from the second to the ninetieth day of the test run, and visual inspection of the casing showed no sign of corrosion.

From the October 1950 issue of Nickel Steel Topics (International Nickel Co.).

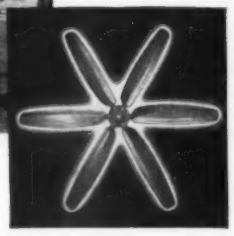
Brazing Terms

Silver soldering (silver-alloy brazing).—A brazing process wherein a silver alloy is used as a filler material.

From 3 to 22 Feet

There's a Hartzell Cooling Tower Fan Exactly Suited to Your Needs . . .

1,250,000 CFM WITH THIS 22-FT. HARTZELL COOLING TOWER FAN



THIS "LITTLE" 3-FOOTER PUTS EXTRA CAPACITY INTO SMALLER TOWERS

Hartzell cooling tower fans are built to give you the size and capacity you need — from 3-foot diameter to 22-foot. And at every size level you'll get *more* . . . more capacity per cubic foot of tower . . . more flexibility, because air deliveries can be changed if your requirements should change . . . more years of life, because Hartzell cooling tower fans withstand vibration, corrosion, abrasion and other factors of deterioration.

For instance—the Hartzite plastic of which Hartzell fans 10-feet and larger are made *has no fatigue limit;* cut it and the cut will not develop into a major fault. Even wilful abuse — foolishly high speed, excessive vibration and so on — will damage it much less than experience with less rugged materials would indicate. And in sizes smaller than 10 feet the special Hartzell aluminum alloy does a mighty fine job.

In *every* size, Hartzell fans give you maximum air per power dollar. *They pay out.*

CLIP AND MAIL THIS COUPON NOW FOR INFORMATION

HARTZELL PROPELLER FAN CO.
Div. of Castle Hills Corp.
PIQUA DEPT. P OHIO

Name_____
Company_____
Street & No._____
City & State_____

PROPELLER-TYPE FANS AND BLOWERS—ROOF VENTILATORS—UNIT HEATERS • ENGINEERING OFFICES IN PRINCIPAL CITIES

1950-1951 DIRECTORY OF REFINERIES . . . . . .

The Oil and Gas Journal's DIRECTORY of REFINERIES and NATURAL GASOLINE PLANTS is just off the press. It gives you titles, names and addresses of key men in all major departments. It is an 103-page bound volume of size convenient for library or file.

This is what you get:

1. An alphabetically arranged list of over 400 refineries in the United States and Canada, showing more than 3600 of their key operating, purchasing, and technical personnel.

2. A similarly arranged list of over 475 Natural Gasoline Plants and Cycling Plants throughout the country, with the main office, plant location, and key personnel in excess of 1825.

3. In all, over 5400 key personnel are listed in this directory, an average cost of $1.60 per 1000 names.

4. A geographically arranged survey of the active refineries in the United States, Canada and Mexico, showing their crude oil and cracked gasoline capacities and the type of products manufactured . . . plus a list of refineries that are now shut down.

5. A survey of the Gasoline and Cycling plants in each state, showing input and output capacities.

PRICES

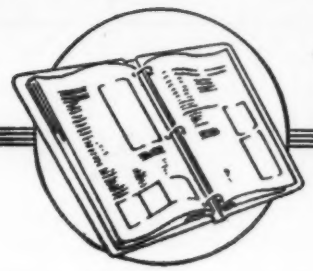
Single copies	**$10.00 each**
10 or more copies	**7.00 each**

Mail orders to Reader Service Department

Published and Sold only by

THE OIL AND GAS JOURNAL

TULSA 1, OKLAHOMA



THE REFINER'S notebook

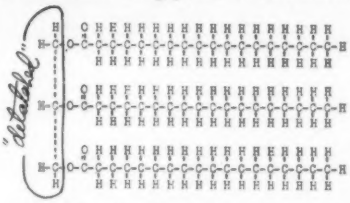
No. 55

Fats and Greases*

A LUBRICATING-GREASE mixture contains a metallic soap made from natural fatty materials. These fatty materials include lard and tallow rendered from fatty tissue of animals, oils from various plants such as palm and olive oil, and oils from cocoanuts, castor beans, peanuts, cotton seed, and so forth. The difference between fats and oils is purely an arbitrary one. If the material is solid at a temperature of 68° F., it is called a "fat;" if liquid at that temperature, it is called an "oil." We can simplify this discussion and avoid any confusion with petroleum oils by calling all these fats and oils from animal and vegetable matter "fatty materials" or more simply, "fats."

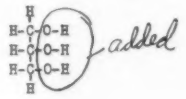
Why is it important to dig into the nature of fats and fatty acids? Because research has shown that the type of fat used largely determines the type of fatty acid obtained, and this has a great influence on the hardness, fibrous structure, and nature of the soap. The soap, in turn, strongly influences many of the characteristics of the grease.

To understand more easily why this is so, take a look at a molecule of fat. The following shows a molecule of glycerl tri-stearate:

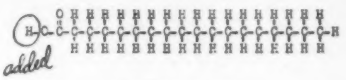


This particular molecule is typical of animal fat substance and is perhaps the most common found in ordinary fatty materials. Examine this molecular structure carefully, because much of the story about grease—descriptions of the reactions the material undergoes and the way it behaves in general—is directly related to the physical structure of molecules of this type.

The left-hand part of the formula (the part with the three carbon atoms forming an up-and-down skeleton) is the main part of a molecule of glycerin which, when complete, looks like this:



The three long chain-like parts extending to the right are the almost complete parts of three molecules of fatty acid (in this case, stearic acid). Each would look like this if it were unhooked from the glycerin and made chemically complete by adding a hydrogen atom.



Stearic Acid

All fatty materials contain long chain-like molecules of this type. But, because of the many possible combinations of carbon and hydrogen these long chains may be of widely different structure. In natural fats, however, the chain parts are always combined with the glycerin molecule, as shown in the glyceryl tri-stearate formula above.

Referring again to the structural picture of the molecule of fat, the line drawn down through the molecule shows the point at which a chemical change can easily occur. By subjecting the molecule to any of various conditions, it can be made to split apart along the line indicated. When it does this (which it can do only in the presence of water) it can take up the parts of three split molecules of water forming a molecule of glycerin and three molecules of fatty acid as represented by the molecular pictures of glycerin and stearic acid shown above.

Stearic acid is just one of some fifty-odd such acids that have been identified, all of them different from the others in molecular structure and in physical and chemical properties.

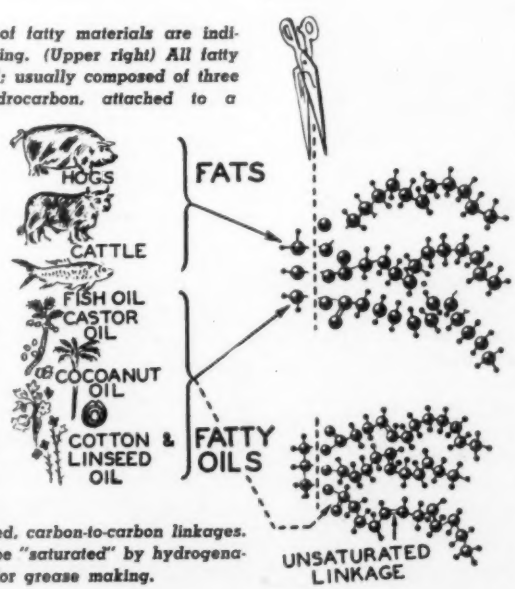


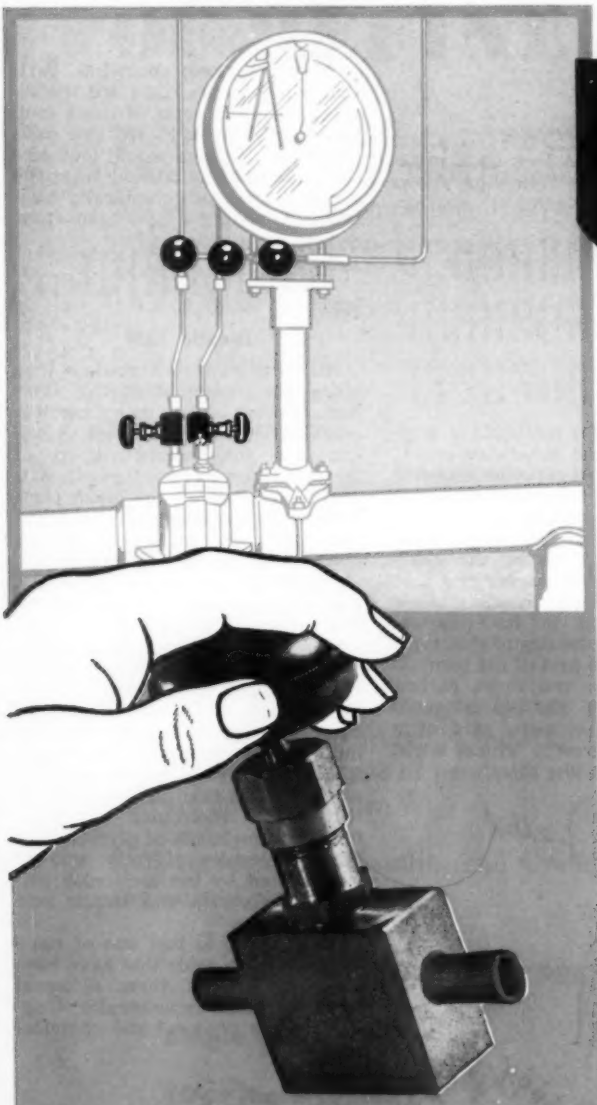
Fig. 1—Common sources of fatty materials are indicated at left of the drawing. (Upper right) All fatty materials are "glycerides"; usually composed of three structures, primarily hydrocarbon, attached to a glycerin structure. The first step in producing fatty acid is to "cut off" the glycerin portion. When the glycerin portion is "cut off," the fatty acid structures are incomplete. The addition of a hydrogen atom to one of the oxygen atoms in each structure makes the product a fatty acid—the parent material from which soap is produced. (Lower right) Many fatty oils contain molecules with unsaturated, double-bonded, carbon-to-carbon linkages. But these molecules can be "saturated" by hydrogenation, and made suitable for grease making.

Fig. 2—The fatty acids produced from various fatty materials differ in character because of unlike numbers and arrangements of carbon and hydrogen atoms in the molecules. The difference, in turn, has a bearing on the character of the soap fibers formed in a grease—fibers that may be as different in structure as the fibrous yarn and cords listed above.

*From material prepared by Shell Oil Co. on "Fundamentals of Lubricating Greases."

GROVE

O RING "T" SERIES SEAT-SEAL VALVES IN YOUR ORIFICE METER MANIFOLDS



save 5 minutes on every chart change

exclusive GROVE design cuts the time for differential zero test

In making the differential zero test when changing charts, fast valve operation means a saving in man-hours. No time-consuming use of wrenches or other tools is required with the Grove "T" Series Seat-Seal Valve. Hand pressure alone opens and closes the valve with a bubble tight seal. Users report savings in time of at least five minutes per chart change!

The unique design of the Grove Seat-Seal Valve makes possible not only this saving in time, but also increases valve life and reduces maintenance cost. Wire drawing and cutting of the seat are eliminated. The patented Seat-Seal feature enables this Grove "T" Series Valve to overcome the weakness of conventional metal to metal seat valves.

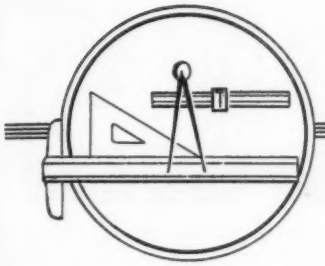
Write for further information on how this Grove "T" Series Seat-Seal Valve can save you time and money when installed on your orifice meter manifolds.

Exclusive Grove "O" Ring design assures a perfect seal every time. Positive shut-off is easy with ordinary hand pressure alone. Wire drawing and damage to the seat are impossible because of the exclusive Grove Seat-Seal design.

Sealing force is *increased* by line pressure, assuring a tight seal at all times.

GROVE REGULATOR COMPANY

1901 CALUMET, HOUSTON, TEXAS
6529 HOLLIS ST., OAKLAND, CALIF.
1930 W. OLYMPIC BLVD., LOS ANGELES, CALIF.



ENGINEERING fundamentals

No. 433

Chart for Conversion of Capillary Pressure To Height Above Free Water Table

ONE use of capillary pressures is to relate height above a free water table to water saturation. This is done by converting the capillary pressure values to an equivalent height. The equation for so doing is

$$P_c = (\rho_w - \rho_o)\, g\, h \times 4.42 \times 10^{-4}$$

Where

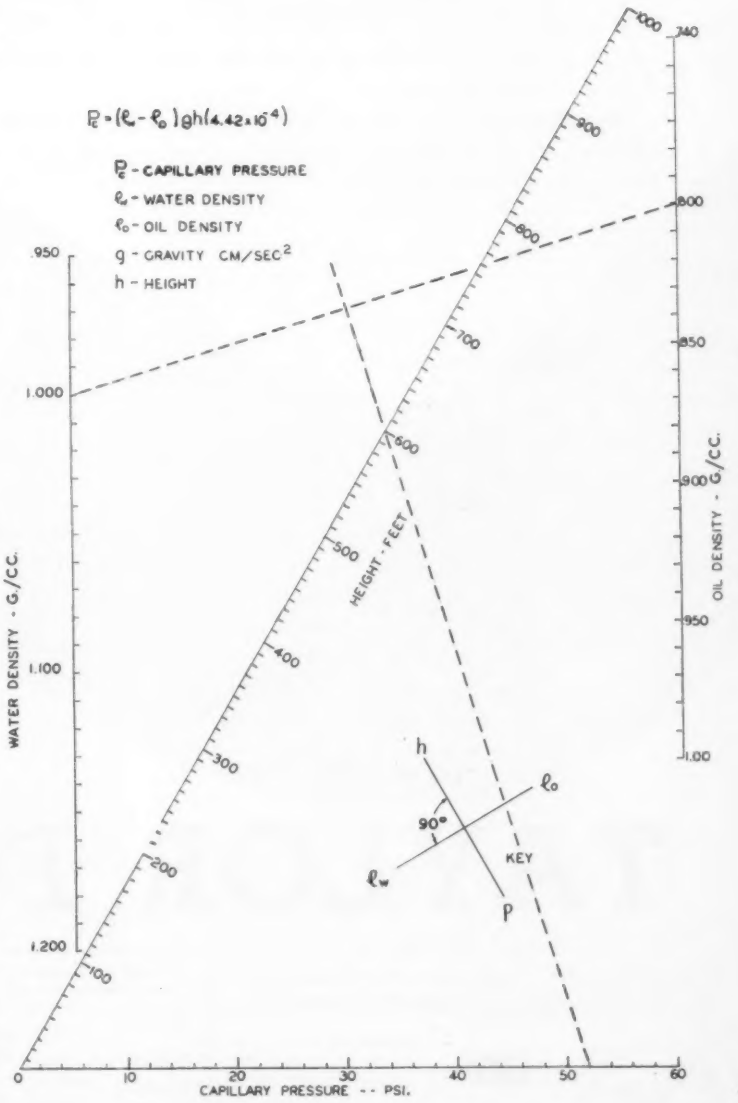
P_c = capillary pressure in psia.
ρ_w, ρ_o = density to water and oil phases respectively, g./cc.
h = height above free water table, ft.

The accompanying chart has been prepared to facilitate this computation. It will be noted that capillary pressures can be converted to feet or vice versa. Further, the scales for capillary pressure and feet of height can be converted by any factor to improve accuracy provided both scales are multiplied or divided by the same factor.

Example: Let the values in a given reservoir at a given time for ρ_w be 1.0 and for ρ_o be 0.80. The equation would give for the capillary pressure at a height of 60 ft. above the free water table.

$$P_c = (1.0 - 0.8) \times 980 \times 60 \times 4.42 \times 10^{-4} = 5.20 \text{ psia.}$$

It is seen by reference to the chart that as close as reading permits the same answer is obtained. Obviously, the chart could also be used in reverse.



***CAPILLARY PRESSURE CHART.** — This alignment chart (prepared by W. R. Bohon) facilitates ready computation of capillary pressure data to height above free water table, or vice versa.*

Series by Dr. John C. Calhoun, Jr., Chairman, Petroleum Engineering School, Penn State College

WeldELLS®

Let's get down to fundamentals: — There is only one *permanent* way to join pipe — only one joint as strong as the pipe itself — the properly *welded* joint.

A properly welded joint involves just two basic factors — a good fitting and good welding. In the WeldELL line you have not only the fitting that expresses the highest development in engineered strength and closely controlled metallurgy . . . you also have the fitting with features that enables the welder to do his job better and faster.

The WeldELL line embraces the widest range of sizes, weights, types and materials. In many sizes and types there are no fittings BUT WeldELLS!

TAYLOR FORGE

TAYLOR SPIRAL PIPE is available in a broad range of sizes and thicknesses. Coupon brings Spiral Pipe Bulletin 493.

TF

TAYLOR FORGE & PIPE WORKS
P. O. Box 485, Chicago 90, Illinois
Offices in all principal cities. Plants at: Carnegie, Pa.; Fontana, Calif.; Hamilton, Ont., Canada.

☐ Please send Catalog 484 covering welding fittings and forged steel flanges.
☐ Send Bulletin 493 covering Taylor Spiral Pipe and related fittings.

506-0151

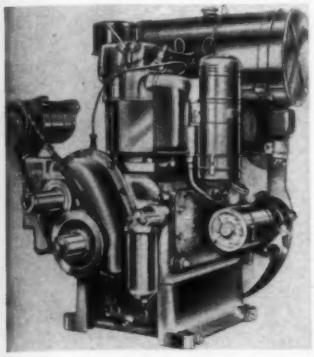
NAME_____
POSITION_____
COMPANY_____
STREET ADDRESS_____
CITY_____ ZONE____ STATE_____
Mail to Taylor Forge & Pipe Works, P. O. Box 485, Chicago 90, Ill.

OIL AND GAS EQUIPMENT Digest

IT'S NEW CHECK IT

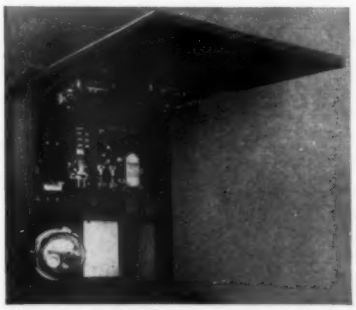
by Dan B. Miller

23 ARMSTRONG-SIDDELEY AIR-COOLED DIESELS. Single-cylinder model develops 8 hp. at 1,500 r.p.m., and two-cylinder model develops 20 hp. at 1,800 r.p.m. Both models have bore and stroke dimensions of 4½ by 4¼ in. These diesels are particularly well suited to generator service developing from 3 to 10 kw. Both models may be furnished with standard S.A.E. bell housing mounted on the flywheel cowl that will accept standard generator housings. Flywheel driving member and adapter ring accept a standard No. 4 S.A.E. clutch. Both models afford virtually effortless cold starting by hand; however standard electric Auto-Lite starters and generators will be mounted if specified. An unusually low rate of fuel consumption results in extremely economical cost of operation. *Lister-Blackstone, Inc.*



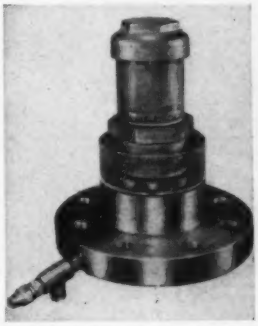
IT'S NEW CHECK IT

24 COMBINATION LIFE-LINESTARTER, CLASS 11-206-OP. Designed for application with a single-speed squirrel-cage motor used in oil-well pumping, it starts, stops, and provides the motor with overload, low-voltage, short-circuit, and lightning protection. In N.E.M.A. sizes 1 through 4 as either a local control unit or automatic unit (time switch automatically controls motor for predetermined pumping periods during day), this new Life-Linestarter is made in ratings up to 100-hp. 440-volt polyphase. New components include a Life-Linestarter; a 3-pole, 650-volt lightning arrester; and a slamproof self-indicating handle. The enclosure permits inclusion of optional accessories such as the day-omission feature that allows programing of a week's pumping, and the time-delay relay (for staggered automatic restarting after power failure). *Westinghouse Electric Corp.*



IT'S NEW CHECK IT

25 INTERNAL SAFETY VALVES for liquefied petroleum tank discharging are similar in design to those S&J valves used for discharging truck and storage tanks containing petroleum products under normal pressure. L.P.G. valve is normally held closed by spring tension and can be opened only by hydraulic pressure supplied by the S&J operator, which is actually a hydraulic pump. When hydraulic pressure is released, any open valve will close tightly and instantly. Should an accident tear away discharge lines or hydraulic lines, pressure holding valve open is automatically released, allowing that valve to close. If fire should break out near the L.P.G. tank, tiny fusible plugs inserted in the hydraulic lines melt, releasing pressure which in turn closes any open valve. *Shand & Jurs Co.*



IT'S NEW CHECK IT

26 GM NATURAL-GAS DIESEL. A diesel engine that runs on natural gas, using only a minute pilot charge of diesel fuel as an ignitor, developed by Detroit Diesel Engine Division of General Motors is a conversion of the division's Series 71 diesel engine. When converted the engine operates both on natural gas with the pilot charge of diesel fuel and also on diesel fuel alone. Equipment necessary for the conversion is offered as an option installed on new engines leaving the factory and also as a factory-engineered kit for engines now in use. No electrical ignition system is needed for either form of operation. The change to and from either fuel is instant and is accomplished merely by moving a small lever. *Stewart & Stevenson Services.*

IT'S NEW CHECK IT

The Oil and Gas Equipment Digest presents a review of what is new in equipment and trade literature . . . makes it possible for readers to obtain full information on every subject by use of convenient "Check It—Mail It" service card. This periodic feature of The Oil and Gas Journal will include all that is new in equipment . . . at a time when new products are being introduced, and existing products improved.

Keep Informed. Save Time. Tear Out Card. Check It. Mail It.

DOWELL PARAFFIN SOLVENTS are first aid for production problems caused by paraffin deposits.

For a "tough" situation where paraffin deposits are gumming up the works, choose economical, time-tested Dowell Paraffin Solvents, designed to *increase production* in pumping or flowing wells by dissolving the toughest paraffin—even complicated by impurities such as salt and sand.

For example, the production of a dually completed, high-pressure well was cut by paraffin deposits in the tubing and annular space between tubing and casing. The well was shut in and Dowell Paraffin Solvent lubricated into the casing and tubing. The solvent was allowed to remain in contact with the paraffin deposit for several hours. *Result:* After one small Dowell Paraffin Solvent treatment, *the flow increased from 150 to 195 b.o.p.d.!*

Dowell Solvents have also proved effective in cleaning lead lines, tank bottoms, screens, liners, perforations and in rerunning rods.

For year-'round paraffin control, secure a supply of Dowell Paraffin Solvents from your nearest supply store or Dowell station. Ask for your free copy of "Time Proven Methods for Removal of Paraffin Deposits", an authoritative, handbook.

DOWELL, INCORPORATED
TULSA 3, OKLAHOMA
Subsidiary of The Dow Chemical Company

DOWELL
PARAFFIN SOLVENTS

Ask your nearest Dowell station for complete information on these Dowell services and products: Acidizing, Electric Pilot Services, remedial Plastic Service, Chemical Scale Removal Service for heat exchange equipment, Jelflake, Paraffin Solvents and Bulk Inhibited Hydrochloric Acid.

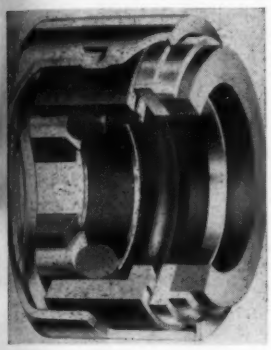
"Petroleum Promotes Progress"

Look to
DOWELL
FOR OIL INDUSTRY CHEMICAL SERVIC

27 A NEW EXPLOSION-PROOF PORTABLE INSTRUMENT will disclose the presence of flammable or explosive gases. The new unit weighs only 6 lb. It measures 5½ in. in diameter and is 6½ in. high. Only two controls are needed beside the on-and-off switch, a voltage-check knob and a zero-setting knob. Measuring elements are accurate, uniform, interchangeable, and assembled in the proper manner for easy handling. *Lor-Ann Instrument Co.*

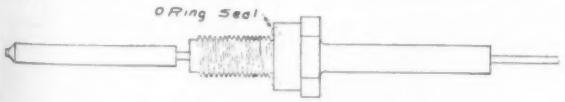
IT'S NEW CHECK IT

28 ALL-IN-ONE MECHANICAL SHAFT SEAL. Construction eliminates the possibility of lost or damaged parts, faulty assembly or contamination of the precision lapped seal faces. No special machining on the part of the pump manufacturer is required. Rubber friction members, incorporated in the rotating and stationary elements of the seals, provide the proper driving and holding actions. This design permits hand assembly of the seal in the pump. Seals include the patented Sealol balanced pressure principle, resulting in minimum seal face pressure, minimum frictional drag, and minimum torque. Seals are built of corrosion-resistant materials and can be furnished to handle water, oil, kerosine, gasoline, etc. Available for shaft sizes from ⅜ to 1½ in. *Sealol Corp.*



IT'S NEW CHECK IT

29 NONFREEZING BEARING FOR MERCURY-TYPE FLOW METERS. The bearing will not leak either in vacuum service or under extreme high pressures. It is sealed efficiently in such a manner that the medium being measured does not contact with the moving parts contained in the bearing housing. This seal system also eliminates the deficiencies of freezing and corrosion. The



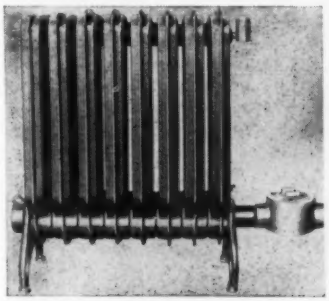
installation of the bearing is reduced to connecting the mercury float and the pen arm linkage. There is no stuffing box or seal to adjust to prevent leakage. The bearing does not require lubrication either at the time of installation or periodically. Bearing friction is reduced to a very minimum and remains constant within any pressure range. *Industrial Instrument Corp.*

IT'S NEW CHECK IT

30 HEAVY-DUTY TUMBLER SWITCHES, in adjustable flush mounting, explosionproof enclosure, is available in one and two-pole, three and four-way. Furnished complete with switch unit and conduit box either with polished chromium-plated cover or aluminum gray baked-enamel finish. Switch unit includes tumbler switch with pigtail leads in factory-sealed housing, adjustable collar, and finishing cover. Minimum depth of wall required for this unit is 3¾ in. from finished surface, an important feature where switches are mounted in partitions. Maximum adjustment ⅝ in. *Russell & Stoll Co., Inc.*

IT'S NEW CHECK IT

31 PORTABLE ELECTRIC STEAM RADIATORS equipped with explosionproof fittings are made especially for use where explosive vapors exist and where inflammable products are stored. With no exposed wires, elements, or flames, and no moving parts or switches, no danger of fire, explosion, or carbon monoxide asphyxiation can result from the use of this radiator. The radiator is filled with water and then connected with any convenient a.c. and d.c. wall outlet, saving the expense of running costly transmission lines to provide steam heat. High heating efficiency and economical operation result from the design and construction which provide forced steam heating through pressure jets in all sections of the radiator, plus turbulent steam boiler heating from the patented boiler. Made in two sizes the eight-section radiator, recommended for average-size rooms, draws 950 watts. The 10-section, for larger-than-average rooms, draws 1,190 watts. *Electric Steam Radiator Corp.*



IT'S NEW CHECK IT

32 WONBOLT, SR. Similar to but larger than the Wonbolt, Jr., this new polished-rod clamp has only one nut to secure and is completely self-aligning. It is made from high-tensile, heat-treated malleable iron with a high-tensile steel nut and bolt S.A.E. threaded. Although the Wonbolt, Sr., weighs only 12 lb. it will support a 36,000-lb. load. Tests have indicated that a 140-lb. man can fully secure this clamp in less than 30 seconds using a 24-in. wrench. *Altens Foundry & Machine Works, Inc.*

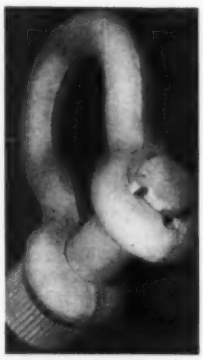
IT'S NEW CHECK IT

33 MOGUL-TYPE POWERFLO PUMP. This air-operated, high-volume, material-handling pump is equipped with a device called the Evenflo which positively prevents spurting. Now surfaces can be coated evenly to meet rigid specifications. Mogul pumps operating in original 400 and 100-lb. drums or in bucket-type

containers, supply industrial material through hoses for spray-gun, pole-gun, or extrusion-gun application. Extra-high-volume Mogul pumps operate within a broad air-pressure range; from 20 to 175 psi. can be powered by air compressors with either large or small output capacities. Moguls weigh only 35 lb. Power head is cast aluminum. Air motor incorporates steel forgings and machined castings for durability, large poppet valves for greater efficiency. Easily changed O-rings stop blowby to provide leakproof seals in air motor. Piston has balanced double action for smooth high-volume delivery. Moguls are simple in design and construction and can be serviced easily. *Gray Co., Inc.*

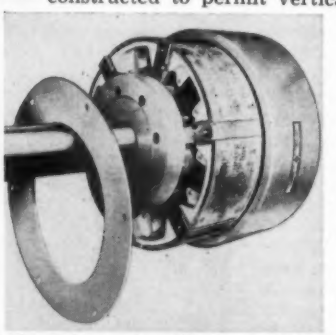
IT'S NEW CHECK IT

34 NEW TYPE SHACKLE provides new factors of safety and of speed. This new shackle can be positively opened or closed even in the dark. Cotter pins have been eliminated. The shackle comes in various sizes and will be very acceptable to drillers and other persons working with wire lines. *George E. Failing Supply Co.*



IT'S NEW CHECK IT

35 RAWSON CENTRIFUGAL CLUTCH COUPLING is constructed to permit vertical lift from the mounting of either driver or driven equipment without disturbing either member whenever moving heavy equipment is a problem. Most dual drives to pumps, fans, generators, etc., are good applications because the equipment is generally mounted in concrete and is unusually heavy. It simplifies maintenance of equipment, reducing shutdown time to a minimum. Driving spider slides back over driving hub to clear driven half of coupling, thus permitting either member to be lifted clear of the other. The couplings are available for either Rawson coupling standard shoes or spring-controlled shoes and come in nine sizes ranging from 6 by 2 to 24 by 8-in. *Centric Clutch Co.*

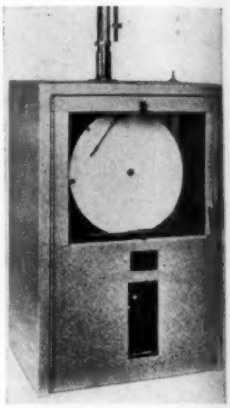


IT'S NEW CHECK IT

36 XMAS TREE GAGE. An important basic innovation in the construction of the gage is a new method of joining the bourdon tube to the socket of the gage and joining the endpiece to the bourdon tube. The bourdon tube is Conowelded into the socket and to the endpiece to form the equivalent of one-piece construction. In this way the unit that has always been most difficult to keep leaktight is permanently sealed for the life of the instrument. Another innovation is the use of a heavy-gage wrought steel, copper-clad case. It is described as noncorrosive, four times as strong as a cast case and one-third lighter. The movement is especially designed to stand up under the pulsating pressures and extreme vibration encountered in oil-country service. *Marsh Instrument Co.*

IT'S NEW CHECK IT

37 GAS GRAVITOMETER. All parts which come in contact with the sample being made are of stainless steel. This new development applies to both the standard instrument and the dry-air type. These instruments, for both corrosive and noncorrosive gases, are made in two standard ranges, one a 0.5 specific gravity using 150-cm. column in which case the range may cover 0.5 to 1.0; 0.7 to 1.2; and 1.0 to 1.5. The other is a 1.0 specific-gravity range using a 75-cm. column. In this case, the range would cover from 0 to 1.0; 0.5 to 1.5 or 1.0 to 2.0, etc. Where periodic changes of the specific gravity ranges are desirable, weights can be furnished which will raise or lower the gravity range of the instrument. *American Recording Chart Co.*



IT'S NEW CHECK IT

38 KEN-OIL LIQUID CONCENTRATE, when mixed with nine parts of low-cost fuel oil or low-gravity asphaltic crude oil, will produce an oil-base mud having all the desired characteristics of a stable drilling and completion fluid. Ken-Oil may be weighted with any type of commercial weighting material and is not contaminated by cement, salt, or gypsum. In addition to the usual advantages of an oil-base mud, it has the features of low cost because it is mixed with inexpensive fuel oil or crude oil. *Mud Control Laboratories, Inc.*

IT'S NEW CHECK IT

39 CYL-SEAL is applied in liquid form to flanged or threaded pipe connections and changes in the joint to a tough elastic solid with extraordinary resistance to vibration and corrosion. It never becomes hard or brittle but does mold a tough, resilient gasket into every joint. It is not dissolved or otherwise affected by oil, gasoline, kerosine, natural gas, propane, butane, oxygen, steam, acids, alkalies, and most other chemicals and solvents. It is low in cost and available in a number of convenient package sizes. Because of its unique properties it is particularly well adapted for service in the petroleum industry, for tool and casing joints in well drilling, and for processing lines in refineries. Joints made up with Cyl-Seal can always be taken apart without damage to threads or fittings regardless of type of service or age of joints. *West Chester Chemical Co.*

NATURAL GAS

Koran Expansion

United Gas Corp. places new facilities in service

Joseph A. Kornfeld

SHREVEPORT.—A new pipe line plus dehydration and compressor-plant facilities were placed in operation by United Gas Corp. this month as part of the company's Koran-Sligo-Sibley expansion program (see drawing).

The new 4,000-hp. compressor station at Koran in Webster Parish, Louisiana, has been put on the line, with gas coming from the Sligo field of Bossier Parish, approximately 5 miles northwest of the new station. Gas enters the compressors at approximately 475 psi., and is boosted by the four 1,000-hp. compressors to 850 psi., which is about main-line pressure in the 24-in. Carthage-Sterlington main line at the tie-in point.

The new compressor plant, situated only a short distance from the 10-year-old Koran gasoline plant, will deliver up to 100,000 M.c.f. of gas per day through the new 16-mile, 16-in. lateral feeding into the 24-in. main line for delivery eastward into the Monroe area. A 1-mile crossing of Lake Bistineau was part of the lateral project.

Dehydration plant.—Placed in service recently was the new 100,000 M.c.f. per day Koran dehydration plant, and now under construction is a 50,000 M.c.f. per day dehydration plant in the Sibley field.

Additional facilities are being built and rearrangements made at the Koran gasoline plant. Another products pipe line, comprising 8.3 miles of 2-in. line, is being constructed from the plant to the railroad loading station at Elm Grove. A 2,000-bbl. storage tank and a loading pump were built at the loading site.

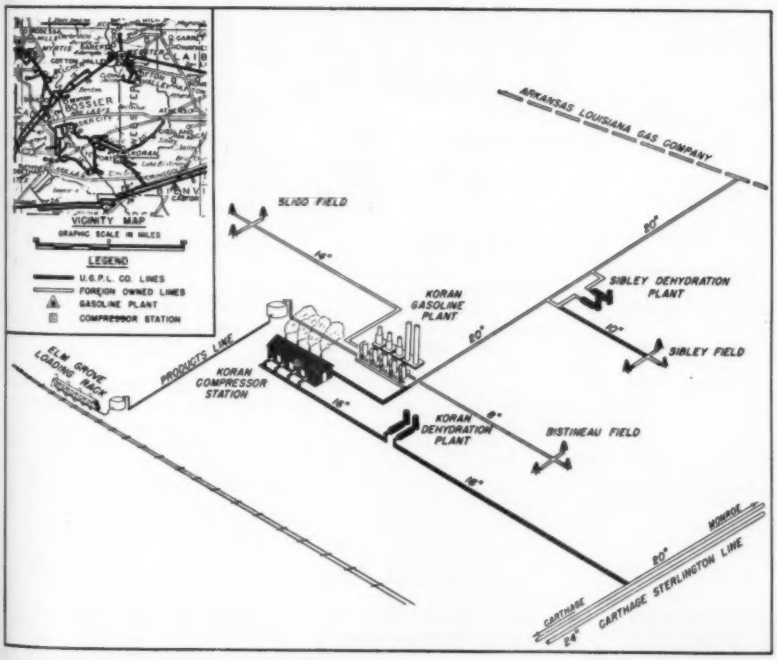
Gathering systems.—At Sligo field, 2,700 ft. of 6-in. gas-gathering line was replaced with 8-in. Four miles of 8 and 10-in. line were laid at Sibley field to connect additional wells, and to increase gas-gathering-system capacities.

Companies Lose in Court

TOPEKA.—The Kansas Supreme Court last week denied a rehearing on the appeal of three natural-gas companies from a Kansas Corporation Commission order fixing a minimum wellhead price for gas produced in the Hugoton field in southwest Kansas.

Firms appealing the decision were Kansas Nebraska Gas Co., Northern Natural Gas Co., and Panhandle Eastern Pipeline Co. The commission's order fixed a minimum price of 8 cents per 1,000 cu. ft.

Chief argument submitted by the companies was that a large percentage of the gas they produce or purchase in the Hugoton field is transported in interstate commerce, and consequently any price-fixing authority should rest with the Federal Power Commission instead of the state corporation commission.



NEW FACILITIES.—Drawing illustrates the expansion program of the Koran-Sligo-Sibley area of United Gas Corp.'s system in the Shreveport district. All installations shown in black were either completed and already in service or under construction by January 1. Light lines indicate facilities that were in existence prior to the enlargement program.

Lecture Series Announced

LAWRENCE, Kans. — Enrollments are now being accepted for a series of natural-gas engineering lectures conducted by Dr. Donald L. Katz, noted natural-gas engineer, at the University of Kansas, March 26-27.

The program is designed generally as a refresher course in natural-gas engineering and to present new ideas and methods of value to engineering personnel. It will be of maximum benefit to personnel concerned with production and transportation of natural gas in the Mid-Continent area, according to Charles F. Weinaug, chairman of the petroleum-engineering department of the university. All ideas and methods discussed will be especially applicable to the Hugoton gas field, Weinaug said.

Lectures are to be grouped under four principal topics concerned with physical and thermodynamic properties of natural gas, flow of natural gas in pipes, flow in reservoir, and prediction of reserves.

The series is sponsored by the department of petroleum engineering of the university, Kansas State Board of Health, the Kansas section of American Institute of Mining and Metallurgical Engineers, Kansas State Geological Survey, and University of Kansas Extension. Advance enrollments should be mailed to E. A. McFarland, manager; Lawrence Center; University of Kansas; Lawrence, Kans. Enrollment fee is $7.50.

Plans Underground Storage

WASHINGTON.—Plans to develop the Waterloo, Ill., oil field as an underground-storage reservoir for natural gas have been placed before the Federal Power Commission by Mississippi River Fuel Corp.

Under the present plan, Mississippi River Fuel would drill 25 injection and withdrawal wells; construct 4 miles of 12-in. feeder lines and 9 miles of 24-in. withdrawal lines; build field feeder and gathering lines and regulating and metering equipment. Total investment cost of the project is estimated at $1,900,798.

The company says the field contains two formations favorable for gas storage, one with a storage capacity of 3,610,500,000 cu. ft. of gas, and the other with a capacity of 13,418,-398,000 cu. ft. (at pressure base of 14.7 psia.).

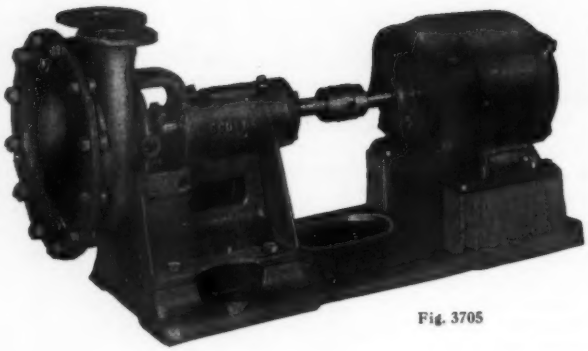


Fig. 3705

FOR OUTSTANDING SERVICE HANDLING CORROSIVE LIQUIDS—

Goulds new stainless steel centrifugals

ADVANCED PUMP DESIGN –

The Goulds 3705 stainless line represents the last word in effective design. Fig. 3705 pumps will give you efficient, dependable, 24-hour service in handling corrosive liquids—at low cost.

CAPACITIES –

Goulds stainless steel centrifugals are made in 8 sizes with capacities to 750 G.P.M. and heads to 180 ft. depending upon capacity.

ADVANTAGES –

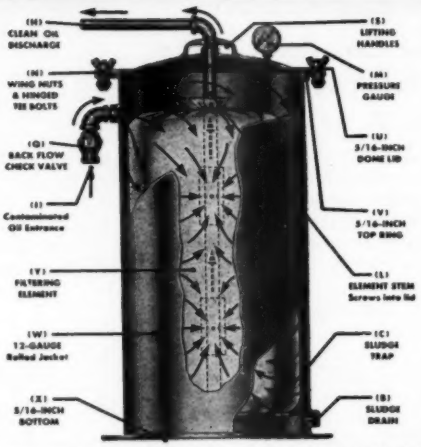
Exceptional efficiency (see Bulletin for performance curves) plus extreme simplicity make this an ideal pump for corrosive applications. Higher interchangeability of parts cuts stocking problem. Quick inspection or cleaning—simply remove casing cover wthout disturbing pipe connections.

MEMBER HYDRAULIC INSTITUTE U.S.A.

Write for Bulletin 725.3 for complete details on this new stainless steel pump.

Goulds PUMPS INC. Seneca Falls New York

Here's Why SUN FILTERS CUT LUBE COSTS!


(H) CLEAN OIL DISCHARGE
(S) LIFTING HANDLES
(N) WING NUTS & HINGED YOK BOLTS
(M) PRESSURE GAUGE
(Q) BACK FLOW CHECK VALVE
(U) 5/16-INCH DOME LID
(I) Contaminated Oil Entrance
(V) 5/16-INCH TOP RING
(V) FILTERING ELEMENT
(L) ELEMENT STEM Screws into lid
(W) 12-GAUGE Rolled Jacket
(C) SLUDGE TRAP
(X) 5/16-INCH BOTTOM
(D) SLUDGE DRAIN

You save because SUN Filters *refine* lube oil as they filter! Cross-section above shows many exclusive features of SUN'S Regular Flow Filters. Also available in dual flow and for diesel fuel!

Send for 20-page free catalog.

SUN ENGINEERING COMPANY

P. O. BOX 4404 - OKLAHOMA CITY 9, OKLA. - PHONE 6-1447

EXPLOSION PROOF!

McDONNELL NO. 65 ELECTRIC CONTROLLER

Underwriters' Approved for Hazardous Locations

A complete float-operated electric controller for water tanks, receivers and other liquid storage systems that can be used under conditions where a conventional type is not applicable. Can be used to "make" or to "break" electrical circuits at either high or low liquid levels — for example, controlling motors, signal lamps, electrical elements, etc. Underwriters' tested and approved for use under the following hazardous conditions:

Class 1, Group C—Atmospheres containing ethyl-ether vapors, ethylene, or cyclopropane.

Class 1, Group D—Atmospheres containing gasoline, petroleum, naphtha, benzine, butane, propane, alcohols, acetone, benzol, lacquer solvent vapors, or natural gas.

Class 2, Group F—Atmospheres containing carbon black, coal or coke dust.

Class 2, Group G—Atmospheres containing flour, starch or grain dusts.

Body pressure, 40 lbs., 1" tappings top and bottom. Write for Bulletin OL-92A.

Doing One Thing Well

McDONNELL & MILLER, INC.

3500 N. Spaulding, Chicago 18, Ill.

REFINING

New Minimum Wage Doubtful

WASHINGTON.—Determination of a new minimum wage for the petroleum-refining industry may wind up a casualty of the defense program, according to a statement made by the National Petroleum Association.

The plan of the Department of Labor to make new minimum-wage determinations under the Walsh-Healey Act for all important industries doing business with the Government appears to hang in balance, as the department suddenly stopped scheduling meetings with industry and labor representatives pending the determination of a national wage-stabilization policy.

Instructions to suspend operations came from Secretary Tobin and judging from all appearances no further minimum-wage determinations will be made during the emergency period, the association said.

Labor Department officials have met twice during the past year with a panel representing management and labor in the refining industry, and, up until 2 weeks ago, were still at work on a draft of a questionnaire to be used in making a preliminary wage survey in the industry.

Alkylation Plant Goes Up

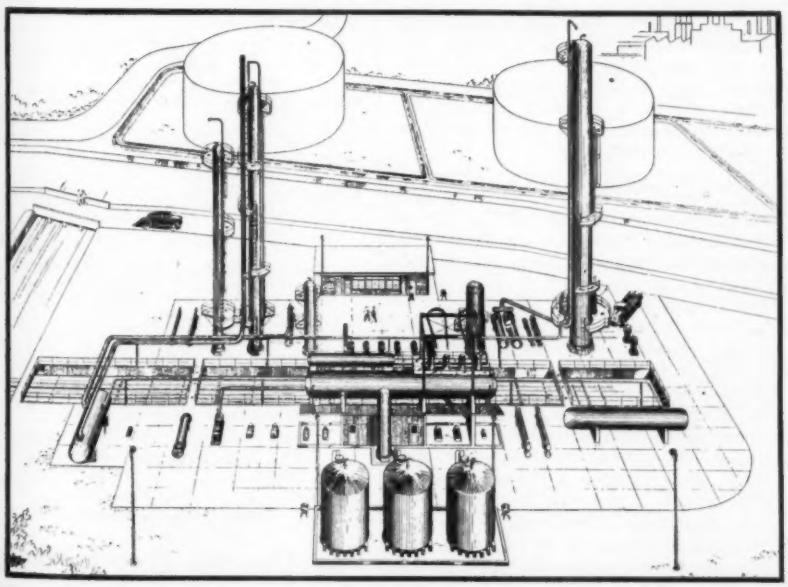
PERTH AMBOY, N. J.—A new 2,180-bbl. per day, sulfuric acid alkylation plant (shown in accompanying sketch) is now nearing completion at California Refining Co.'s Barber refinery here. Designed and constructed by M. W. Kellogg Co., the alkylation plant is part of a major expansion and modernization program which will double the refinery's capacity to 50,000 bbl. per day and incorporate new distillation, catalytic cracking, and treating facilities.

The alkylation plant was originally planned to aid California Refining to boost octane ratings on motor fuel. Since construction began, however, the need for military aviation gasoline has risen substantially, and a rerun tower is being added to the original design to facilitate the fractionation of aviation-grade alkylate.

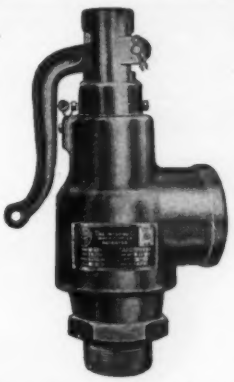
The new unit will produce alkylate from feed stocks comprising isobutane and either butylene or propylene. When butylene is required for blending to winter gasoline, propylene and available butylene will be charged. During the remainder of the year, the operation will revert to straight butylene alkylation.

New A.S.T.M. Book Released

The new annual compilation of standards on petroleum products and lubricants has been released by the American Society for Testing Materials. Prepared by the Society's Committee D-2, the new manual brings up to date all information on testing and specifications of petroleum products. Included in their latest form are 125 A.S.T.M. standards, including 112 test methods, 8 specifications, numerous definitions, tentative recommended



NEW ALKYLATION PLANT.—Artist's sketch of California Refining Co.'s new sulfuric acid alkylation plant now nearing completion at the company's Barber refinery, Perth Amboy, N. J. Alkylate splitter, not shown, will be installed adjacent to debutanizer tower at right.



Greater Safety, Less Blow Down

Inferno 2" Safety Pop Valves are set and sealed at the factory with the minimum blow down permitted by the ASME Code. Bodies are malleable iron. Stems are stainless steel or bronze. Valves are nickel alloy or bronze. No matter what the type of service, there is a "just right" pop valve for you included in Inferno's five styles. Write today for Bulletin 11-E. See your regular supply store for prices and specifications.

The INFERNO CO.
Box 1138A
115 RICOU St.
SHREVEPORT, LA.

NOW

In a new, enlarged warehouse we are better equipped to serve the refinery requirements of the mid-continent area.

We can serve you from stock:

- ★ **GLOBE STEEL TUBES Welding, Fittings, Tubular Goods in various steels and alloys.**
- ★ **HANCOCK Flow Control and Gate Valves**
- ★ **General Refinery Supplies.**

We Invite Your Inquiries

Oil Capitol Supply Co.
TOM N. WORD S. N. WORD W. W. "Camp" COMPTON
Box 615-W TULSA, OKLA. Phone 5-0132

ACRAGAGE
Shockstop!
PAT. APPLIED FOR

Protects against Pulsation and Shock!

Eliminates Snubbers – It Can't Plug –

The Most Significant Pressure Gage Development in 50 Years.

For the first time, a successful means of eliminating the effect of pulsation and shock on pressure gage mechanisms has been developed which DOES NOT introduce an orifice or restriction in the pressure connection. It Can't Plug

FOR COMPLETE INFORMATION, WRITE FOR CATALOG C-50-E

ACRAGAGE CO.
Formerly Clapp Instrument Co.
MILFORD, CONN.

INFERNO

Medium Pressure Gas Burner

★ Makes Hot Blue Flame
★ Easily Installed
★ ECONOMICAL

INFERNO medium pressure gas burners have been used for many years in the oil fields, and have proved their worth over and over again. Write for Bulletin 13-D, giving full details. Sold direct or through your supply store.

The INFERNO CO.
Box 1138A
115 RICOU ST.
SHREVEPORT, LA.

practices and other material. Tests for knock rating of engine fuels and certain sampling and volume measuring standards are issued in special manuals and are not included in this compilation.

Included in the new material are tentative test methods for askarels; boiling-point range of polymerization-grade butadiene, carbon content of butadiene; factors and tables for volume correction and specific gravity conversion of liquefied petroleum gases; lubricating oil additives; apparent viscosity of lubricating greases; acidity of residue from distillation of gasoline and petroleum solvents; water tolerance of aircraft fuels; analysis of 60-octane number isooctane, normal heptane, A.S.T.M. knock-test, reference-fuel blends by infrared spectrophotometry; 1, 3-butadiene in C_4 hydrocarbon mixtures by ultraviolet spectrophotometry; heptane number, kauri-butanol value, and nitrocellulose diluting power of hydrocarbon solvents.

In addition to the report of Committee D-2, the volume includes a number of proposed testing methods. Copies of the 780-page reference manual are available from American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa., at $5.50 with paper cover and $6.15 with cloth cover.

Oil-Shale Study Productive

WASHINGTON.—Laboratory studies performed for the Bureau of Mines have revealed information that would be valuable in the design and operation of commercial retorts for extracting oil from oil shale, according to Oscar L. Chapman, secretary of the interior.

The studies describe the rate at which kerogen — organic matter largely insoluble in solvents for petroleum but easily converted to gas, shale oil, and residual carbon by heat—is separated from oil shale at various temperatures.

Oil-shale samples were pulverized and pressed into cylindrical pellets of approximately uniform size. These pellets were heated in an accurately controlled electric furnace for periods ranging from 24 hours to 10 minutes. The amounts of gas, shale oil, and bitumen formed during each heating period at different temperatures were measured.

The report was prepared by Arnold B. Hubbard and W. E. Robinson, chemists at the Petroleum and Oil-Shale Experiment Station, Laramie, Wyo., and includes a diagram and a photograph of the equipment used.

A free copy of the report (Report of Investigations 4744, "A Thermal Decomposition Study of Colorado Oil Shale"), can be obtained from the Bureau of Mines, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa.

INDUSTRIAL
NATIONAL AIROIL BURNER
OIL AND GAS BURNING EQUIPMENT
NATIONAL AIROIL BURNER CO., INC.
1236 E. Sedgley Ave., Philadelphia 34, Pa.
Southwestern Division, 2512 So. Blvd., Houston 6, Tex.

"GUNITE" CONCRETE
(SINCE 1915)
LININGS FOR
BUBBLE TOWERS • SETTLERS • STILLS • SEPARATORS • TANKS • AND VESSELS OF ALL TYPES • ENCASING AND FIREPROOFING STRUCTURAL STEEL AND PIPE • LINING WATER RESERVOIRS, DITCHES, DRAINS, AND CANALS • REPAIRING DISINTEGRATED CONCRETE AND OTHER MASONRY.
See our catalog in Sweet's
GUNITE CONCRETE & CONST. CO.
1301 Woodswether Road, Kansas City 6, Mo.
DISTRICT BRANCH OFFICES
S. T. Burton Co., 228 N. LaSalle St., Chicago 1, Ill.
George R. Lewis Co., 1200 Baker Bldg., Minneapolis 2, Minn.
B. H. Mueller Co., 6625 Delmar Blvd., St. Louis 5, Mo.
Ole K. Olsen Co., 823 Perdido St., New Orleans, La.
Philip D. Barnard, 2036 Addison, Houston 5, Tex.
Western Steel Prod. Co., 1735 W. 13th Ave., Denver 4, Colo.

DIRECTORY of REFINERIES and NATURAL GASOLINE PLANTS
1950-51 EDITION

Complete listing of key men in all U. S. refineries and natural gasoline plants. Published July 1950, 99 pages, convenient page size.

- Alphabetical listing of refineries of U. S. and Canada. Key operating, purchasing, technical personnel.
- Geographical survey of active U. S., Canadian, Mexican refineries with capacities and type product manufactured.
- State by state survey of Gasoline and Cycling plants with input and output capacities.

PRICES
Single copy ..... $10.00 each
7 or more copies ... $7.00 each

Order from Publisher
THE OIL AND GAS JOURNAL
Reader Service Dept. — Box 1260
Tulsa 1 Oklahoma

HENRY H. PARIS DISTRIBUTOR Inc.

Manufacturer's Agent - Oil Well and Refinery Supplies

P. O. BOX 932 HOUSTON, 1125 ROTHWELL ST. TEXAS

FLEETLINE
Forged Steel Welding
PIPE SADDLES

Fleetline saddles fit the contour of the pipe . . . have correct wall thickness. They weld neatly into place with much less time and welding rod. Fleetline Saddles are made from welding grade, seamless steel of proper chemical and physical analyses. They do a better, safer, more permanent job at less cost.

Agent and Distributor for the following Nationally known Manufacturers

W. C. NORRIS MANUFACTURER, INC.
Tulsa, Oklahoma
Quality Pumping Equipment, Swage Nipples, Bull Plugs, Welding Fittings, etc.

WHEELING MACHINE PRODUCTS CO.
Wheeling, West Virginia
XL Steel Pipe Couplings for OIL COUNTRY TUBULAR PRODUCTS

THE OHIO INJECTOR COMPANY
Wadsworth, Ohio
OIC VALVES, Bronze, Iron, Cast and Forged Steel for all purposes.

HARRISBURG STEEL CORPORATION
Harrisburg, Pennsylvania
Forged Steel Flanges and Seamless Casing Couplings.

VOLCANO BURNER COMPANY
Houston, Texas
Volcano Superior and Gulf States All Steel Gas Burners for OIL COUNTRY BOILERS.

OIL STATES EQUIPMENT COMPANY
Houston, Texas
OSECO Silvertop Fusible Plugs with renewable inserts for all types OIL COUNTRY BOILERS.

DRESSER MANUFACTURING DIV.
Bradford, Pa.
Seamless Welding Fittings.

WESTERN SAFETY BARREL STAND STEEL FORGINGS, Inc.
Shreveport, La.
Weld Saddles.

90 Deg.
DRESSER ELLS

Made by an exclusive process from seamless steel pressure tubing, meeting ASTM A-234 standards. Dresser Ells are cold formed to assure optimum physical properties of the metal. Center-to-face dimensions held to one and one-half times the nominal size. Minimum wall not less than thickness of specified pipe. Straight tangent on both ends means, 1) Weld removed from plane of greatest stress. 2) Straight bead welding permitted. 3) Pipe alignment simplified.

NEW high pressure steam trap is SHOCK and EXPLOSION PROOF!

Here's a small inexpensive steam trap designed especially for high pressure super-heated steam conditions in oil refineries and chemical industries up to 500 p.s.i. and 800° total temperatures. Made in popular ½" and ¾" sizes with a recessed gasket to prevent blowing out, these sturdy forged steel traps are shock and explosion proof. In addition, they have all of the famous Super-Silvertops cost cutting advantages . . . take less time to install, blow down, and repair than any other trap. Contact your Super-Silvertop representative for complete details.

SUPER-SILVERTOPS *save money*

For Additional Information

V. D. ANDERSON COMPANY
1981 West 96th Street • Cleveland 2, Ohio

Please send the following:
☐ Details on new high pressure steam trap.
☐ 36-page book "Solving Steam Trap Problems."

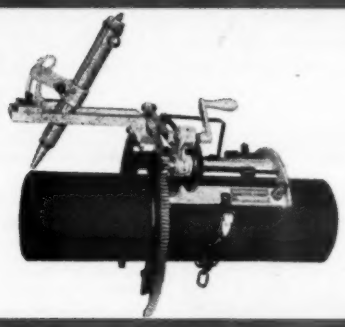
Name .....
Address .....
City .....

In Canada: Bawden Machine Co., Toronto

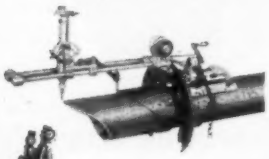
for SPEED and ECONOMY use . . .

H&M

PIPE CUTTING and BEVELING MACHINE



ATTACHMENTS



Shape Cutting Attachment for cutting the various shapes of pipe intersections.

Out-of-Round Attachment is used when pipe is out of round.

speed . . . . . Split horseshoe shaped gear permits machine to slip quickly over pipe. Fast operating snap chain fasteners hold it in place. A complete cut and bevel can be made in a 12 inch pipe in about two minutes.

economy . . . You'll soon save several times the cost of the machine in labor, gas and transportation charges. H&M takes approximately one-half the labor and gas to make the cut as hand cutting and the work is all done in the field.

portability . . Bring this light (24 to 155 pounds) but durable machine to the pipe instead of moving the heavy pipe to the machine. Remember, H&M designs for SPEED and ECONOMY.

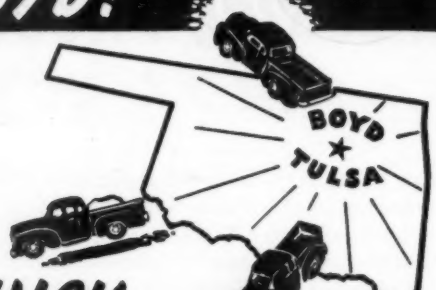
Let us arrange a demonstration to show you how H&M will save you money and time. Or write for further details . . .

H&M PIPE BEVELING MACHINE COMPANY

311 E. 3rd St. Tulsa, Okla.

Phone 3-0241

Your Best Bet is BOYD!



QUICK DELIVERY! on INTERNATIONAL TRACTRACTORS and POWER UNITS, PARTS

Boyd is one of the largest distributors of International industrial machinery west of the Mississippi.

CLARENCE L. BOYD CO.

303 So. Frankfort • Phone 8191

TULSA, OKLAHOMA

PUMPS

CENTRIFUGAL
RECIPROCATING

BUILDERS OF OUTSTANDING PUMPS
Since 1869

4085

3918

4057A

2446

4115C

2352L

8000C

3833

ESTABLISHED 1869

DEAN BROTHERS PUMPS INC.

INDIANAPOLIS IND.

323 W. TENTH ST.

PIPE LINES

Service Buys Old Line

FORT WORTH.—A 48-mile section of 8-in. pipe line between Ranger and Weatherford, Tex., formerly owned by The Texas Co., has been purchased by Service Pipe Line Co. from O. R. Burden Construction Corp., according to F. M. Willenburg, East Texas division manager. Service crews are now in the process of reconditioning the old line which has been in the ground since 1919.

Service plans to make the old line usable by constructing approximately 7½ miles of 8-in. line to connect the west end of the line with Service' Ranger station, and by tying the east end into the company system between Mexia and Graford near Weatherford.

Construction work on the 7½-mile section was begun last week by Vaughn & Taylor Construction Co., Wichita Falls, contractor.

By using this stretch of reconditioned line and installing additional pumping equipment at Ranger station, the company's crude-oil-outlet capacity from the Ranger area will be approximately doubled to total 42,000 bbl. daily.

Service plans to install four 220-hp. Le Roi gas engines at the station, which presently is equipped with a 300-hp. diesel engine.

To handle the increased quantity of crude, the company is installing booster pumps between working tanks and pumping units instead of increasing the size of suction lines. At present, oil is being gathered and delivered to Service at Ranger station by Humble Pipe Line Co., and Premier Pipe Line Co.

The section of old line which Service is reconditioning between Ranger and Weatherford is one segment of a line Burden Construction Corp. bought for salvage from The Texas Co. The 8-in. line continues eastward from Weatherford to Fort Worth and Dallas. Service has arranged to purchase from Burden all usable pipe that is salvaged from the remainder of the line.

Pipe Line Reverses Flow

DETROIT.—Out-of-state crude oil is now flowing north from Toledo to Michigan refineries through Michigan-Ohio Pipeline Corp.'s interstate 8-in. pipe line. The 250-mile transmission system was purchased from Sohio Pipeline Co. by Michigan-Ohio September 1, 1950. Built in 1936, the line has been used mainly in the southward movement of Michigan crude oil to Toledo, or for intrastate crude-oil movement. During a brief period in 1941, the flow was reversed to bring Illinois crude oil to Michigan refineries.

The north movement of Illinois and Mid-Continent crude oil is the joint operation of Michigan-Ohio and Buckeye Pipeline Co. This reversal of flow will bring an anticipated 12,000-13,000 bbl. per day of out-of-state crude oil to Central Michigan refineries. All refineries in that area including Leonard Refineries, Inc., and Midwest Refineries, Inc., at Alma; Roosevelt Oil & Refining Corp., Mount Pleasant; Aurora Gasoline Co., Elsie; and Crystal Refining Co., Carson City; will receive out-of-state oil or its equivalent in exchanges.

The southern portion of the line, from the so-called Elsie Junction in Gratiot County to Toledo was involved in the reversal. The portion of the line from Elsie Junction to the Freeman Station in Clare County will be used to transport Michigan crude oil south to refineries.

Longest Gas Line Complete

NEW YORK.—Transcontinental Gas Pipe Line Corp. was scheduled to begin moving natural gas into New York City this week in commercial quantities.

Commencement of regular deliveries January 16 marks the completion of the world's longest gas pipe line and the beginning of the first major use of natural gas in the New York metropolitan area.

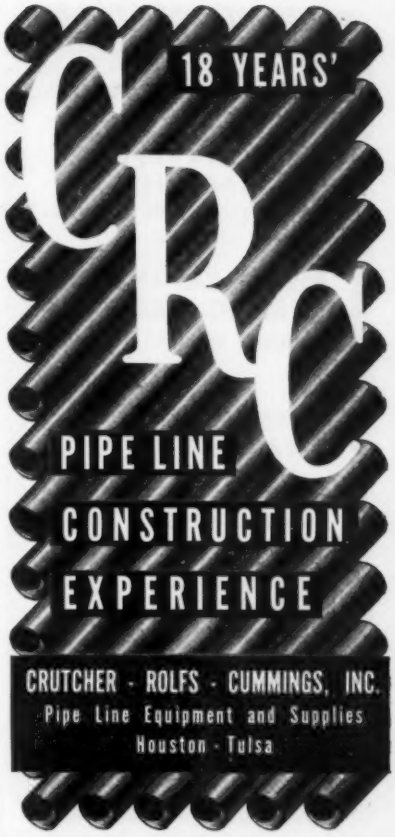
Initial commercial deliveries were to be made to New York distributing utilities at a rate of about 125,000,000 cu. ft. daily. This amount is to be increased gradually up to the full contract quantity of about 251,000,000 cu. ft. daily.

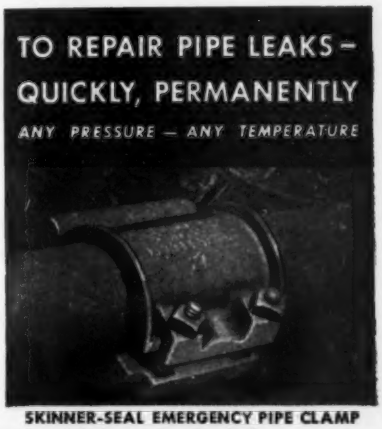
Transcontinental's 1,840-mile, 30 and 26-in. system terminates at a metering pier on the Hudson River at 134th Street. Here the gas is taken by city companies for mixing in their own gas plants. One of New York's boroughs, Staten Island, has been served with natural gas since August 1949 from a connection with the Texas Eastern Transmission Corp. system, but Transcontinental's deliveries are first to reach the city in large quantity.

Service Finishes Line

Service Pipe Line Co. has completed a 25-mile, 8-in. extension of its crude-oil line in Fremont County, Wyoming, extending northwesterly from Beaver Creek field to Wind River Junction.

The Wyoming State Public Service Commission reported that the extension would cost approximately $373,000. It connects with the company's main line at Wind River Junction.





SKINNER-SEAL EMERGENCY PIPE CLAMP for pinhole or corrosion leaks.

SKINNER-SEAL PIPE LINE CLAMP for long splits and bad corrosion leaks.

In stock—all oil well supply stores

M. B. SKINNER COMPANY
SOUTH BEND 21, INDIANA, U. S. A.

"Everything for the Pipeliner"

PIPE COATING and WRAPPING MACHINES
Stationary and Line Traveling

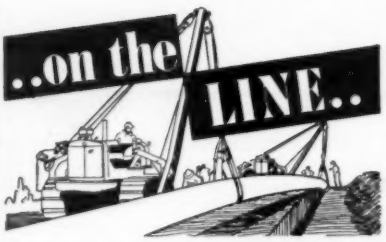
PIPE CLEANING and PRIMING MACHINES
Stationary and Line Traveling

American Steel Works
HEATING KETTLES

PIPE LINE SUPPLIES AND EQUIPMENT

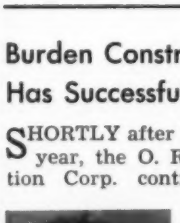
PERRAULT Brothers
1130 NORTH BOSTON
TULSA 6, OKLAHOMA
Phone 5-1104

EXPORT OFFICE: 30 ROCKEFELLER PLAZA
PHONE CIRCLE 6-6260 • NEW YORK, N. Y.



Burden Construction Firm Has Successful First Year

SHORTLY after being organized last year, the O. R. Burden Construction Corp. contracted with Great Lakes Pipe Line Co. for the laying of a section of 12-in. system in Iowa. This first job was carried on in difficult winter weather with the ground frozen to a depth of 33 in. At times conditions were so severe that work was entirely shut down.



O. R. BURDEN

Personnel: The company is headed by Oscar R. Burden, president; P. T. Thibodeaux is vice president and general superintendent; J. S. Burden is secretary and treasurer; W. G. Eastman is office manager. Spread superintendents are Barney Hall, Pete Hiner, and Floyd Lewis. Headquarters offices and warehouse are at Tulsa.

History: Oscar R. Burden began pipe lining with The Texas Co. pipeline organization in 1910. In 1939 he was North Texas manager of Texas Pipe Line Co. before he became vice president and general manager of Panhandle Oil & Refining Co. He was associated with Burden & Wright Pipe Line Construction Co. From 1942 to 1947 he was with the Big Inch and Little Big Inch systems, first as general superintendent of War Emergency Pipelines, Inc., and later as manager of maintenance.

In July 1947 he went to Beirut, Lebanon, as manager of Williams Brothers organization when it was preparing to build the western section of Trans-Arabian Pipe Line. After Israel-Arab hostilities forced a withdrawal he became president of Pacific Pipe Line & Engineers, Ltd., at Los Angeles.

Operations: During the past year he has contracted lines for Texas Pipe Line Co., Texas-Empire Pipe Line Co., Mid-Valley Pipe Line Co., Stanoline Pipe Line Co., Globe Oil & Refining Co., Phillips Pipe Line Co., and Sinclair Refining Co.

El Paso Plans Expansion

EL PASO.—El Paso Natural Gas Co. has asked the Federal Power Commission for authority to increase capacity of its pipe-line system by 400,000,000 cu. ft. of natural gas per day. The project is part of El Paso's planned new construction program which will cost an estimated $83,000,000.

Plans call for delivery of 150,000,000 cu. ft. of additional gas per day to Southern California Gas Co. and Southern Counties Gas Co. of California, and 150,000,000 cu. ft. to other customers in Arizona, New Mexico, and Texas. Facilities for increased delivery in Arizona, New Mexico, and Texas are expected to be completed by October 1, 1951, while those for delivery in California are to be in operation by November 1952.

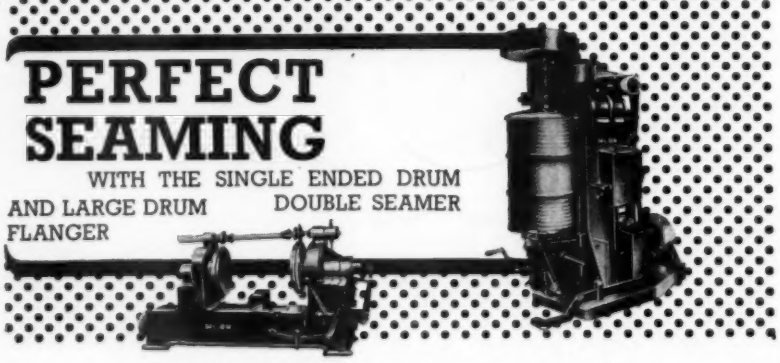
The company plans to construct 93 miles of 26-in. and 30-in. pipe on sections of its transmission line from the Permian basin to the Arizona-California state line.

189-Mile Line Completed

Great Lakes Pipe Line Co. has completed an 189-mile, 12-in. pipe line between Barnsdall, Okla., and Kansas City, Kans., which will considerably increase the volume of product movement from southwestern refining areas to the central consuming territory.

The line, which parallels an existing line, was expected to go in oper-

PERFECT SEAMING
WITH THE SINGLE ENDED DRUM AND LARGE DRUM FLANGER
DOUBLE SEAMER



The combination of these two machines ensures perfect seaming on Heavy drums. Model G.F. Large Drum Flanger incorporates a compensating device which tolerates the unavoidable variations in drum body lengths and produces flanges of the regularity necessary for faultless seaming. Model P.R. Single Ended Drum Double Seamer has been specially developed for seaming heavy drums and has an adjustable pressure cam for various flange widths.

Please write for full details.

MOON
Regd Trade Mark

MOON BROTHERS LIMITED, BEAUFORT ROAD, BIRKENHEAD, ENGLAND
Cables: "Moonbro" Birkenhead, England
LONDON OFFICE: Abbey House, 2/8 Victoria Street, Westminster, S.W.1.
Cables: Moonbro, Sowest, London, England

MAKERS OF TIN BOX AND DRUM MAKING MACHINERY

dm MB 20

ation this week. Its capacity is 60,000 bbl. daily. It will be necessary, however, to complete accompanying terminal and other projects before the company's entire pipe-line-expansion project is in service.

The firm is reported considering as another pipe-line-construction project the laying of a 100-mile, 8-in. line from Des Moines to Iowa City, Iowa, on the leg to Chicago.

Contracts Let On Big Line

Contracts have been awarded for the construction of the 20-in. crude-oil pipe line from central Wyoming to the Wood River-St. Louis areas in southwestern Illinois, according to Henry L. Phillips, president of Platte Pipe Line Co.

Construction cost of the 1,072-mile line is estimated to run about $8,500,000, with extra work and services relating to construction costing another $2,000,000 or more.

Contract for about half of the line, from Chatham Station, Wyo., to Brule, Neb., has been awarded to R. H. Fulton, Lubbock, Tex. O. R. Burden, Tulsa; Bishop & Lock, Dallas; and Ramsey Brothers, Houston, were awarded contracts for the remainder of the line.

Five firms own Platte Pipe Line Co. They are British-American Oil Producing Co., Continental Oil Co., Ohio Oil Co., Pure Oil Co., and Sinclair Refining Co. Actual direction of the building of the Platte project will be through R. J. Tibbetts, president, and W. H. Morris, vice president, of Sinclair Pipe Line Co. at Independence, Kans.

Plans Facilities Expansion

WASHINGTON. — Tennessee Gas Transmission Co., Houston, has filed an application with the Federal Power Commission for authorization to construct pipe-line facilities designed to increase the design delivery capacity of its transmission system by about 45 million cubic feet of natural gas per day. The gas would be delivered to Iroquois Gas Corp., United Natural Gas Co., and Equitable Gas Co.

Tennessee plans to build a total of 253 miles of loop line, to install approximately 61,000 hp. in existing compressor stations, and to construc approximately 100 miles of miscellaneous lateral lines. About 186 miles of the loop would be located along Tennessee's existing main line at various points from Texas to Kentucky Forty-three miles of the loop would be along the company's Buffalo extension.

Estimated cost of the project is $36,241,000. Iroquois, United and Equitable, which now receive gas from Tennessee, each has exercised its option for an additional 15 million cubic feet of natural gas per day, the application says.

There are hundreds of reasons
why we should handle your
oil-banking for you. . . .

But--before we bore you. . . .

There's one BIG reason that
should sway you. . . .

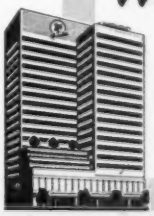
And here's why it will pay you. . . .

To "oil-bank" at the
FIRST OF TULSA -
and, that is, well. . . .

The 497 actual years of experience
in oil banking by our
top personnel. . . .

So--we hope in this philosophy
you'll become immersed. . . .

In Oil -- In Banking
In Tulsa --
Think.....FIRST.



THINK 1st of Tulsa

★ In our Correspondent Bank Department, You should know, Elmo Thompson, Joe Byrd, Harry Lane, Bill McLean, and Dick Wagner.

THE FIRST NATIONAL BANK
AND TRUST COMPANY OF TULSA

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

AN UNBEATABLE TEAM!

A Good Drilling Crew . . and MISSION Slush Pump Parts

Mission Silver Top Valve for Normal Pressures

Efficient pump operation is one of the "musts" in drilling fast hole. MISSION Slush Pump Parts have become the first choice of drilling crews the world over . . . because they insure powerful, efficient slush pump operation.

To assure MISSION precision and quality in every renewable slush pump part, the MISSION line has been rounded out by addition of the MISSION "Super Service" Liner. The MISSION Liner is a ***perfected*** product . . . accurately bored, ***induction*** hardened to ***uniform*** case thickness, precision honed, and "Satin Finished".

For economy and fast hole, MISSION Pistons, Rods, Liners, Packing, and Valves constitute a team that ***can't be beat.*** Your supply store handles them. . . . Mission Manufacturing Company, Houston, Texas. Export: 30 Rockefeller Plaza, New York. European Address: London, England.

Mission Super-Service Valve for High Pressures

Among the Drilling Contractors

New Drilling Firm Formed in Wichita

B. (Buck) Wilson, L. L. Cotter Jr., B. W. Burks, and A. Leon Derby, Jr., have formed a partnership to engage in contract rotary-drilling operations. Headquarters are in Wichita, in the Derby Building. The partners are all former members of Derby Drilling Co. A. Leon Derby will continue as president of the Derby concern. The new concern is known as Rocket Drilling Co.

Corbett-Barbour Drilling Co., Tulsa, is starting a 2,600-ft. wildcat test for Flynn Oil Co. at 1 Anthis, SE SE SW 19-19n-9e, in northern Creek County, Oklahoma.

Midwestern Drillers are contractors on the Alpine Oil & Royalty Co. 1 Fritzmeier, in SW SW NW 25-23-12, Stafford County, Kansas. Location is 2 miles east of Bedford pool.

Standard-Fryer Drilling Co. has drilling contract on and has an interest in Ashland Oil & Refining Co. 1 Sherrod, in Section 6, Block C of L&SV Survey, Upton County, West Texas, 15 miles northwest of Stiles.

***SOUTH TEXAS WILDCAT.**—View of Kirkwood & Co. company rig drilling below 6,800 ft. at 1 Miller, on a 53.46-acre lease in the Malcolm McAuley Survey, A-13, 3 miles southwest of Sinton in San Patricio County, Texas. Twenty-three rigs are active in San Patricio County at this time to lead South Texas field activity.*

Crews were drilling ahead at 7,195 ft. on the test which is contracted to the Ellenburger or 10,500 ft.

Newton Barrett Drilling Co. and associates of Shawnee, Okla., have staked five offset locations as to start on a large development program around their recent Wilcox sand discovery northeast of Shawnee in Pottawatomie County, Oklahoma.

K & E Drilling Co. has moved its offices from the Union National Bank Building at 1006 Central Building in Wichita.

Parker Drilling Co. has spudded to 300 ft. on its contract to drill the Pray & Ellison 2 Lindsay townsite, in SW SE 10-4n-4w, Garvin County, Oklahoma.

Brown Drilling Co., Long Beach, has been awarded contract for an extension attempt to Winters gas field of Yolo County, California. The test will be D. D. Feldman Oil & Gas Co. No. 8-1 Woodward-Reynolds Unit in NW 13-8n-1w. In the West Edison area of Kern County, Brown last week also completed a field well for Ring Oil Co. and was in the process of completing Macson Oil Co. No. 28-1 Porter.

Carl B. King Drilling Co. has rotary contract on a test to be drilled by Blackwood & Nichols Co. in northeast Terry County, Texas. The test will be an 11,200-ft. wildcat and will be the 1 H. V. West, 709.8 ft. from north and 618.2 ft. from east lines of the southeast quarter of Section 9, Block E, EL&RR Survey. Drill site is 3 miles northwest of Meadow.

Sterling Drilling Co. tools are making hole at the Fred Nixon and others 1 Karlin, in NW SW NE 14-13-17, Ellis County, Kansas. The test is 1 mile southeast of Catherine pool.

Coats & Hearrell Drilling Co. has been awarded drilling contract to drill the W. M. Coats 1 J. L. Moore, in Lot 1 of 3-9s-10w, Cleveland County, Arkansas. This will be a 4,200-ft. wildcat, 4 miles northeast of the Rison townsite.

Rine Drilling Co. is drilling contractor on the J. H. Tatlock 1 Barbee, in SW SW SW 19-27-15, at the western edge of Pratt County, Kansas. Nearest production is at Chance pool, 14 miles west and 4 miles south. Rine tools are also drilling the 1 Flick,

SAVE SPACE

WITH

HINDERLITER

"YL"

CASING HEAD!

Type "Y-L" Casing Head is extremely compact and efficient. Its compact design makes it especially adaptable to installation in well cellars where both height and room is a factor. It has a minimum number of parts, and provides an economical means of safely supporting and packing off casing strings on wells of medium depths and pressures.

Type "Y-L" Casing Head is of FULL OPENING construction. It allows passage of any equipment which the pipe will accommodate.

HINDERLITER PORTER "Better Built" EQUIPMENT

Why not investigate Hinderliter "Y-L" casing heads now? Just write . . .

HINDERLITER

TOOL COMPANY DIVISION

H. K. PORTER CO., INC.

Tulsa 1, Oklahoma

Reduce Drill String Joint Failures!

'BESTOLIFE permits tool joints and casings to be made up to their maximum design position, insuring a tight joint and efficient sealing —at the same time allowing easy separation of parts. Sold and exported by supply houses throughout the world.

I. H. GRANCELL
1601 EAST NADEAU STREET
LOS ANGELES 1, CALIFORNIA

The Oil Burner That Uses ANY Gravity Fuel Oil at ANY Pressure

If your fuel oil is fluid enough to pass through the delivery pipe to the ¾" opening in the burner, and there is enough pressure to get the fuel oil to the burner—the INFERNO Oil Burner is what you need. It will fire anything from a small rivet heating furnace to a 150 h.p. oil country boiler.

Sold direct or through your supply company.

Write to us for free descriptive literature.

The INFERNO CO.
Box 1138A
115 RICOU St.
SHREVEPORT, LA.

which Tatlock is drilling ½ mile south of Frey pool at the eastern edge of Pawnee County, Kansas. Location is in NE SE SE 12-21-15.

McAlester Fuel Co. has the contract to drill the Arkoma Oil Co., Inc., and V. S. Parham et al 1 Louie Brantley, in Nevada County, Arkansas. This will be a 3,800-ft. Travis Peak outpost 3 miles northeast of the Falcon townsite in NE NE SE 24-14s-23w.

Fred Morgan has contracted to drill the Max Pray, Fred Morgan and Kenneth Ellison 1 Brock, in SW SW 13-5n-4w. This will be a 9,000-ft. Fifth Deese test, and location is ¾ mile north of production in North Lindsay field, McClain County, Oklahoma.

Coastal Drilling Co., Los Angeles, at last reports had reached a depth of 500 ft. at the joint test of Continental Oil Co. and Standard Oil Co. of California at Hayden Creek in White Pine County, Nevada. The wildcat, 1 Hayden Creek unit, is the companies' second attempt to establish oil production in northeastern Nevada.

Penguin Petroleum Co. tools are drilling the W. G. Talbott 1 Rilling, in SW SW SW 18-22-1w, a mile east of Sperling pool and 2 miles south of Hesston pool in northern Harvey County, Kansas.

Portable Drilling Co. was making hole below 3,200 ft. at the Ellison 1 Burke, in NE NE NE 17-13n-9e, Okfuskee County, Oklahoma. Drill site is southeast of Welty, Okla., and 1¾ miles southeast of Northeast Welty pool. The test is scheduled to go to the Wilcox.

Rocky Mountain Drilling Co., Los Angeles, has drilled below 8,250 ft. on the deep test it is drilling for Standard Oil Co. of California in the Elk Hills Naval Reserve, California. The well, X-55 in Section 30-30s-23e, probably will be carried below 12,500 ft. to check the field's deeper oil possibilities.

ROTARY RIGS IN OPERATION*

(United States and Western Canada)

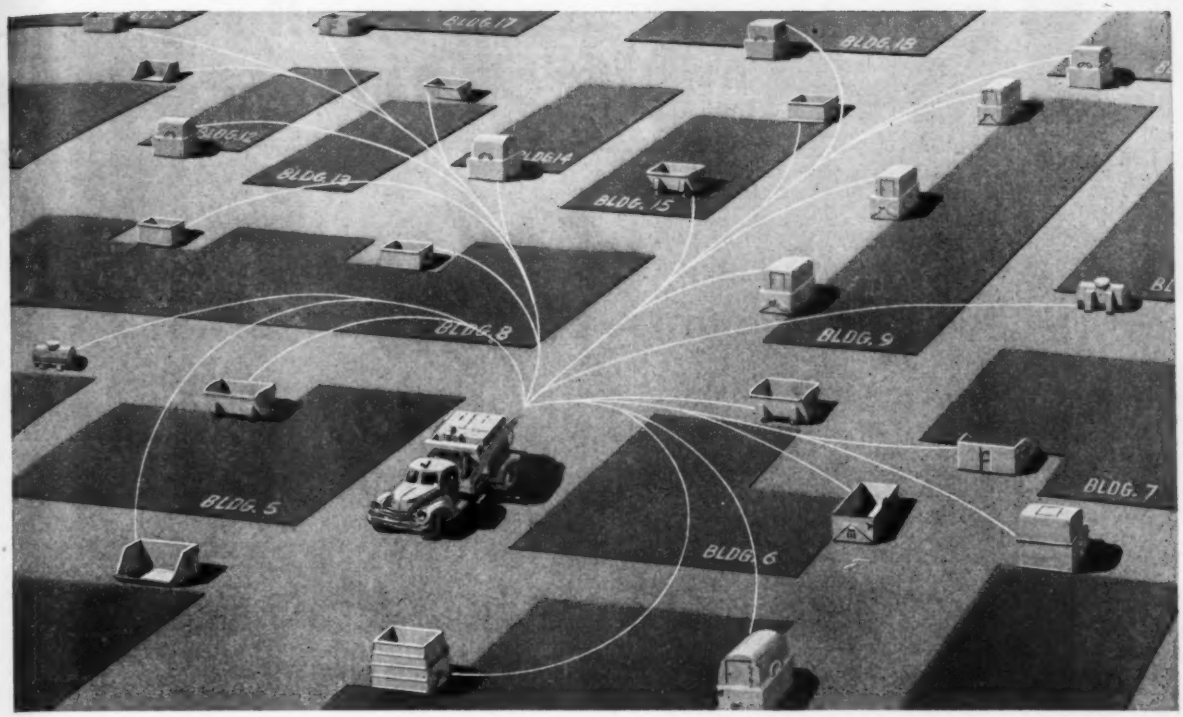
Area—	Week ended 1-8-51	Change week ended 1-1-51	Change week ended 1-9-50
Gulf Coast	536	—31	+ 35
W. Tex.-N.M.	769	—21	+ 65
Ark.-N. La.-E. Tex.	147	— 7	+ 10
Oklahoma	284	+ 2	+ 49
Kansas-Nebraska	136	0	+ 23
Illinois-Eastern	123	+ 4	+ 28
Rocky Mountains	110	— 1	+ 36
Pacific Coast	129	— 5	— 3
Total U. S.	2,234	—59	+243
Western Canada	100	—13	+ 22
Total	2,334	—72	+265

*Courtesy Hughes Tool Co. Trends in drilling activity in the United States as a whole and the Rocky Mountain and Western Canada areas are shown by charts on pages 124 and 125.

IMMEDIATE DELIVERY
FROM STOCK
Wood's
SHEAVES • PULLEYS • HANGERS • PILLOW BLOCKS • COUPLINGS • BEARINGS • COLLARS • "SURE-GRIP" SHEAVES AND PULLEYS • "SURE-GRIP" STANDARD AND STEEL CABLE V-BELTS • COMPLETE DRIVES.
Write for detailed information, today.
T. B. WOOD'S SONS COMPANY
1117 W. COMMERCE ST., DALLAS, TEXAS
Main Office & Factory: Chambersburg, Pa.
Branches: Boston, Mass., Newark, N. J., Cleveland, O.

Standco NO-SMOKE
STANDCO BRAKE LINING
Stands the gaff and gets the job done without scoring brake rims. See pages 3608-3613, Composite Catalog.
Standco Brake Lining Co.
HOUSTON

DECALS
THE LONG LASTING ECONOMICAL NAMEPLATE
10 DAY DELIVERY
SEND PENCIL SKETCH AS TO SIZE AND NUMBER OF COLORS FOR PRICES
MIRACLE DECAL CO.
734 S. Washington Wichita, Kans.



★ Never Before Have You Been Able To Cut Bulk Materials Handling Costs So Drastically

Pictured above is a skeleton layout of a typical industrial plant using the Dempster-Dumpster System — one truck mounted Dempster-Dumpster handles the entire group of 26 Dempster-Dumpster containers of six different types. These big, detachable steel containers are like having 26 truck bodies for a single truck.

Any required number of Dempster-Dumpster containers are spotted at convenient materials accumulation points inside and outside your plant. They range in sizes up to 10 cu. yds. and are made in various designs to suit your particular needs. Materials — bulky, light, heavy, solids, rubbish and even liquids—are dumped or placed in these containers. The truck mounted Dempster-Dumpster makes scheduled rounds, picks up each preloaded container, carries it to the point of disposal, sets it down intact or dumps the materials and returns the container for refilling. The entire operation is hydraulically controlled and handled by only one man, the driver.

It is not unusual for one Dempster-Dumpster to eliminate up to 10 conventional trucks . . . reducing investment accordingly. This means cutting maintenance costs, tire and gas requirements tremendously. And, more important, it increases production with a minimum of manpower. It will pay you to investigate the Dempster-Dumpster System now! A product of Dempster Brothers, Inc.

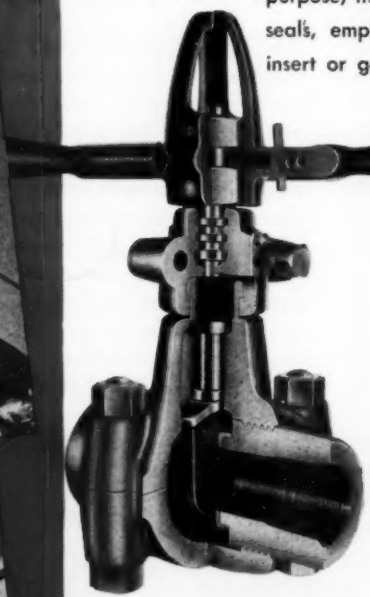
Above, the Dempster-Dumpster is shown in the three simple stages of picking-up, hauling, and dumping an 8 cu. yard drop bottom container . . . completing the cycle in one to two minutes. These photos show the ease with which the Dempster-Dumpster handles all containers, regardless of their type, size or whether they are bottom or tilt dumping types. The important feature to remember is that only one truck-mounted Dempster-Dumpster and driver handles one container after another in an endless cycle, constantly on the move for economy and efficiency never before available in bulk materials handling.

DEMPSTER BROTHERS, 511 Dempster Building, Knoxville 17, Tennessee

they all say— "YOU CAN DEPEND ON Flex-Seal

- for a tight seal,
- easy operation
- and low cost upkeep"

There's nothing like the Cameron Flex-Seal Mud Line Valve for handling abrasive fluids. Designed expressly for that purpose, this unique valve has no metal-to-metal seals, employing, instead, a resilient flow-way insert or gate packer (red area in cross-section view at left) which absorbs the cutting action and provides a pressure-tight seat for the gate. After long service, the flow-way insert may be replaced at the rig with ordinary tools, an operation that requires no skill and little time. Cost of the new insert is only a few dollars. Compare this easy and low cost maintenance with that of conventional gate and plug valves.



Complete details will gladly be sent to interested operators on request.

Cameron

IRON WORKS, INC.

P. O. BOX 1212 • HOUSTON, TEXAS

WAREHOUSE STOCKS AT: Corpus Christi, Odessa, and Snyder, Texas and Long Beach, California.

EXPORT: 74 Trinity Place, New York, N. Y.

Exploration and Drilling

On Estimates of Proven Reserves

NEXT week in The Oil and Gas Journal's annual Review and Forecast Number will appear estimates of the proven reserves of crude oil and natural-gas liquids in the United States. Just what are these figures?

When it is stated that there are so many proven barrels of crude oil and natural-gas liquids remaining in the United States, reference is made to an estimated number of barrels of these liquid hydrocarbons (hereafter called "oil") which are considered recoverable by currently applied means from known reservoirs, developed or being developed. These estimates must not be confused with estimates of reserves yet to be found.

The estimated proven reserves of oil do not include oil that may be recovered by secondary methods unless these methods have been initiated and definite results indicated. They do not include oil from oil shales or coal. Furthermore, reserve estimates are based on existing economic and operating conditions.

Proven remaining reserve figures are estimates and they can never be more than estimates until the last barrel of oil is produced. These estimates require constant revisions due to new discoveries, extensions of estimated productive areas as determined by drilling, adjustments in recovery per acre due to performance which may indicate more or less oil than estimated by the last scientific guess, and withdrawals (production).

Why make an estimate? Underground oil reservoirs are the storehouse of the oil industry's primary supplies. To keep the industry running efficiently an inventory is required from time to time. Oil-field camps, pipe lines, refineries, etc., are constructed only after reserve calculations have been made. Forecasts of production, activity directly or indirectly related to the oil industry, demand for oil-field supplies, and so on are dependent on reserve estimates.

History of reserve estimates show that proven reserves have gone up and up in spite of an almost constant increase in withdrawal rates. How is this possible? Are we actually discovering more oil each year than we use? The answer is that over a period of years we have been finding more oil than we've used and there is no reason to believe that we won't go on finding more than we use for a good many more years. It is seldom recognized at the end of a given year that more oil has been discovered than produced. It generally takes development, and performance over a period of time to give a reasonable indication of the ultimate of an oil field. Upward revisions in reserve estimates for an average field in the United States continue over an interval of 25 years or more. However, at the end of the first 3 or 4 years of a field's life, if development has not been arrested nor production too sharply restricted, reasonable estimates of the field's ultimate production can be made. That is, they'll be reasonable until somebody comes along and opens up a prolific deeper pay or proves that rocks flanking the defined structure contain more oil than the original portion of the field. An outstanding example of this kind is going on in Stephens and Carter counties, southwestern Oklahoma, around the old Velma, Sholem Alechem, Fox-Graham, and Camp fields, where tremendous increases in reserves appear probable in the next few years.

There is another factor that enters into the growing reserve estimates. Petroleum engineers and production geologists have developed methods and gained sufficient experience and confidence for estimating reserves more realistically, call it optimistically, if you wish, than they dared a few years back.

Before drawing any conclusions from the proven-reserve figures that will appear in next week's issue of the Journal it is suggested that you study Frederic H. Lahee's "Our Oil and Gas Reserves—Their Meaning and Limitations," which was published in the November 30, 1950, issue of the Journal on page 69. Among other things, Lahee warns, "don't be fooled by that quotient of the year-end-proved-reserves divided by the year's production."

Philip C. Ingalls.

HIGHLIGHTS OF WEEK'S DEVELOPMENTS

ROCKY MOUNTAIN AREA.—Shows of gas have been found in two important wildcats in the Four Corners area of Colorado and Utah. Byrd-Frost, Inc., has tested an estimated 5,000,000 cu. ft. daily at the 1 Sitton, Montecello, San Juan County, wildcat. Woody Hawkins found Paradox gas and distillate in the Northwest Dove Creek area, Dolores County, Colorado, and is now testing his 1 Government in that formation.

GULF COAST.—A new Wilcox field is indicated at Kirby Petroleum Co. 1 R. T. Buchanan et al., Indiola RR Survey, Abstract 204, Victoria County. Operator cored 34 ft. of oil sand from 8,127-61 ft. and is now coring at 8,199 ft. which is reported to be in another sand horizon believed to be a gas sand. The well is located 2 miles south-southwest of Shell Oil Co.'s new Helen Gholke field, also a Wilcox strike.

WEST TEXAS.—New Spraberry sand production was indicated at Snowden and others' 1-32 Dean-Gulf, 8½ miles north of nearest production in Spraberry Deep field of Dawson County. Test from 7,273-7,313 ft. recovered 3,200 ft. of oil, and the drill pipe unloaded while coming out of the hole. Northeast of Brownfield Canyon field, Terry County, Wilshire Oil Co. 1 Augusta Brownfield had shows of oil and gas, with good porosity, in samples of Mississippian lime from 11,660-11,708 ft.

MID-CONTINENT.—Gas-distillate production of Light pool (Beaver County, Oklahoma) may be extended into Seward County, Kansas. Jomilson Producers, Inc., has tested 50,000,000 cu. ft. of gas with 500 bbl. distillate per day at 1-B Light, 11-35s-32w.

Oklahoma

Lindsay District Opens Second Pool This Year

THE second new oil pool within 2 weeks for the Lindsay area of Garvin County is being opened by Max Pray and Kenneth Ellison at their 1 Miller, C NW SW 11-4n-4w. Located near the east edge of the Lindsay townsite, the newer discovery is about 1½ miles northeast of the first, made the previous week by Superior Oil Co. at its 1 McDaniel, C NW SW 15-4n-4w. Both discoveries are in holes which previously had been abandoned temporarily.

The Pray and Ellison well flowed 93 bbl. of oil with 1,500,000 cu. ft. of gas per day through 1-in. choke after casing, cemented at 8,050 ft., had been perforated opposite the fifth Deese (Osborne) sand. Perforations were at three intervals, 7,900-60 ft., 7,828-44 ft., and 7,696-7,746 ft. Hole was abandoned temporarily last November after having been drilled to a total depth of 8,109 ft. Operators resumed operations last month, cleaning out, running casing and plugging back to 7,980 ft.

The Superior well, previously reported, was completed pumping 70 bbl. of 40.2°-gravity oil per day from Gibson sand, opposite which casing was perforated at 8,115-73 ft. It had been abandoned at a total depth of 12,549 ft. before operators went back into the hole, cleaned out and ran casing to 8,203 ft.

Another Garvin County development is the indicated reopening of the West Pauls Valley pool, northwest of Pauls Valley. Cities Service Oil Co. 1 Hatcher, NW NW NE 28-4n-1w, ¾ mile northwest of the discovery, and so far only producer (now abandoned) of the pool, found good saturation in Bromide sand and got oil flows or substantial oil recoveries on drill-stem tests. The zone was topped at 4,520 ft. with the first sand being checked at 4,540 ft. and the oil sand at 4,589 ft. The first drill-stem test, with tool open 27 minutes, was made of an interval at 4,589-95 ft. Oil flowed the last 4 minutes and in the breakdown 1,200 ft. of oil and mud was recovered. A 90-minute test at 4,595-4,605 ft. flowed gas within 4 minutes and yielded 4,450 ft. of 42°-gravity oil in the breakdown. In a third test, made at 4,615-31 ft. with tool open 13 minutes, oil flowed at an estimated rate of 20 to 25 bbl. per hour during the final 3 minutes.

Sterling Oil Co. of Oklahoma, Inc., 1 Fulks, SW NW NE 18-9n-11e, a wildcat in the Wetumka area of northern Hughes County, swabbed 18½ bbl. of oil in 12 hours while testing Cromwell sand, with hole open at 2,994-4,003 ft. Gas flow was estimated at 200,000 cu. ft. per day.

Herndon Drilling Co. 1 Smith, SW NE SE 26-13n-8e, 1½ miles south of the Rosenwald pool, nearest production, in Okfuskee County, got 1,200 ft. of clean oil and 400 ft. of oil mud in a 60-minute drill-stem test of a Pennsylvanian, possibly the Cromwell, sand logged at 3,476-3,550 ft. Casing has been run to bottom for completion.

OKLAHOMA SUCCESSFUL WILDCATS

Alfalfa County: Davis, Smiley, Little & Myers et al 1 Glidewell, SW SW NE 14-24n-11w, flowed 6 bbl. oil from Oswego at 5,857-5,930 ft., TD 5,935 ft.

Carter County: Magnolia Petroleum Co. et al 7 Bumpass, NW SE 33-1s-3w, gaged 6,500,000 cu. ft. gas from Simpson at 5,224-5,522 ft., TD 10,900 ft.

Creek County: Young 1-A Anthis, NE NE SE 24-16n-9e, flowed 3,300,000 cu. ft. gas from Bartlesville at 2,368-80 ft., TD.

Brosius & Hall 1-A Spurgeon, NE NW NE 13-17n-8e, pumped 6 bbl. oil from Bartlesville at 2,742-56 ft., TD.

Garvin County: Superior Oil Co. 1 McDaniel, C NW SW 15-4n-4w, pumped 70 bbl. oil from Gibson at 8,115-73 ft., TD 12,549 ft., OWWO.

Hughes County: Turpin et al 1 Epperley, SE SE SW 32-6n-8e, elev. 812 ft., pumped 18 bbl. oil from Senora sand at 1,228-36 ft., TD 1,239 ft.

Lincoln County: Mid-Continent Oil 1 School Land 213, SE SE SE 29-14n-5e, elev. 869 ft., pumped 15 bbl. oil from Bartlesville at 3,985-4,006 ft.

Logan County: R. M. Jordan 1 Carum, W/2 SW NW 33-16n-1w, elev. 1,162 ft., flowed 100 bbl. oil from Bartlesville at 5,380-88 ft., TD 5,914 ft.

Schermerhorn 1 Bridal, NE NE SE 5-19n-4w, flowed 72 bbl. oil from lower Layton at 4,744-66 ft., TD 6,420 ft.

Muskogee County: Swindler, Moxey, and Williams 2 Kershaw, SE SW SW 19-15n-18e, flowed 75 bbl. oil from Muskogee at 1,787-1,803 ft., TD.

Noble County: Stanolind 5 Scholpp, SE SE SE 32-20n-2w, est. elev. 1,104 ft., pumped 3 bbl. oil from Simpson and Arbuckle at 4,895-5,014 ft. and 5,285-5,310 ft., TD 5,246 ft.

Pawnee County: L. B. Jackson 2 Van Eman, SE NW SE 23-20n-8e, elev. 844 ft., pumped 5 bbl. oil from Red Fork at 2,305-25 ft., TD.

Payne County: Mid-Continent 1 Minnick, NW NW NW 19-19n-6e, elev. 905 ft., pumped 20 bbl. oil from conglomerate at 2,602-18 ft., TD 3,087 ft.

Woods Drilling Co. 2 Hill, NE SW NW 8-18n-5e, elev. 791 ft., flowed 49 bbl. oil from conglomerate at 2,553-57 ft., TD 2,823 ft.

OKLAHOMA WILDCAT FAILURES

Comanche County: M. W. Blair 1 Peck, NE SW SW 11-2s-10e, dry, TD 1,700 ft.

Cotton County: Webb and Beck 1 Henderson, SW NW SW 25-4s-11w, dry, TD 1,822 ft.

Webb and Beck 1 Pierce, SE NW SW 13-4s-11w, dry, TD 1,806 ft.

Strother & Strother 1 High, N/2 NE SE 20-2s-11w, dry, TD 2,614 ft.

Creek County: Harwood and Fisher 1 Lamons, NE NE NE 14-14n-9e, dry, TD 1,763 ft.

Hughes County: Walker 1 Palmer, SW SW SW 33-6n-8e, dry, TD 1,250 ft.

Jefferson County: Falcon-Seaboard 1 Bay, C SW SW 10-5s-5w, dry, TD 1,806 ft.

Kay County: Horwitz and Theis 1 McGraw, NE NE NE 2-27n-2e, dry, TD 3,617 ft.

Texas Co. 1 Sheppard, SW SE SW 24-27n-2w, dry, TD 4,994 ft.

Lincoln County: Olson Drilling Co. 1 Clark, SW SW NE 35-16n-2e, dry, TD 5,261 ft.

Mul-Berry Oil Co. 1 Bishop, SW SE NE 28-13n-5e, dry, TD 3,457 ft.

Rainey & Tarpenning 1 Maulin, SW SW NE 7-14n-3e, dry, TD 5,146 ft.

Coronado Oil Co. 1 Sprague, NW NW SE 6-15n-4e, dry, TD 4,374 ft.

Love County: Texas Pacific Coal & Oil Co. and Continental Oil Co. 1 Forbes "A," SW NW SE 23-6s-1e, dry, TD 5,972 ft.

Okfuskee County: Mercury Oil & Gas Co. 1 Dunsan, SE NW NW 7-11-10e, dry, TD 4,014 ft.

Waggoner and Rocker Oil Co. 1 Miracle, NE NE SW 30-13n-7e, dry, TD 4,429 ft.

Oklahoma County: Deardord 1 Haracker, SW SW NW 34-13n-1w, dry, TD 6,335 ft.

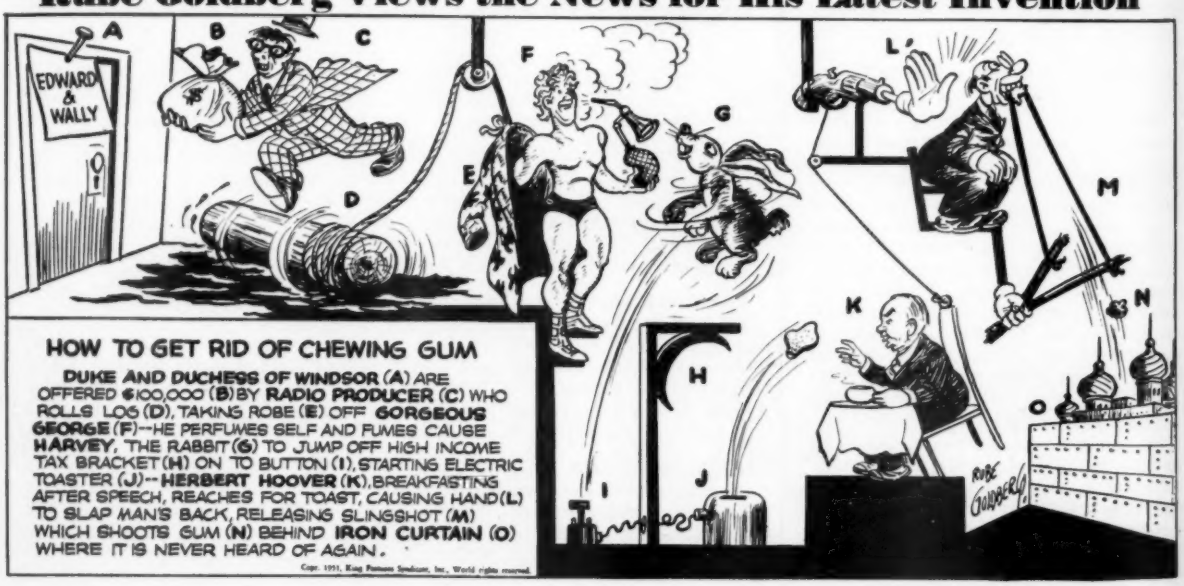
Okmulgee County: Rowden 1 Pine, NW NW NE 10-13n-12e, dry, TD 1,345 ft.

Payne County: Patton Bros. Drilling Co. 1 Lovell, SW SW NE 35-19n-3e, est. elev. 923 ft., dry, TD 4,050 ft.

Pottawatomie County: Pace 1 Marlock, SE NE SW 30-6n-2e, dry, TD 5,661 ft.

Stephens County: J. F. Smith 1 Brown, NW SW NW 11-3s-7w, dry, TD 3,765 ft.

Rube Goldberg Views the News for His Latest Invention


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
EDWARD & WALLY
HOW TO GET RID OF CHEWING GUM
DUKE AND DUCHESS OF WINDSOR (A) ARE OFFERED $100,000 (B) BY RADIO PRODUCER (C) WHO ROLLS LOG (D), TAKING ROBE (E) OFF GORGEOUS GEORGE (F)--HE PERFUMES SELF AND FUMES CAUSE HARVEY, THE RABBIT (G) TO JUMP OFF HIGH INCOME TAX BRACKET (H) ON TO BUTTON (I), STARTING ELECTRIC TOASTER (J)--HERBERT HOOVER (K), BREAKFASTING AFTER SPEECH, REACHES FOR TOAST, CAUSING HAND (L) TO SLAP MAN'S BACK, RELEASING SLINGSHOT (M) WHICH SHOOTS GUM (N) BEHIND IRON CURTAIN (O) WHERE IT IS NEVER HEARD OF AGAIN.
RUBE GOLDBERG
Copr. 1951, King Features Syndicate, Inc., World rights reserved.

California

Operators Plan to Drill More in Active Areas

LOS ANGELES.—California operators in general are planning to do more drilling this year than in 1950. That is, they will if they can get the necessary tubular goods to complete the projected wells.

These plans, brought out in recent company announcements, are further shown in the Conservation Committee's summary of anticipated new wells for the first quarter of 1951. This shows the companies expect to complete about 148 oil wells in January, well above the number planned for any month in the past year. A total of 120 are planned for February and 98 for March. Since this latter activity is planned 3 months in advance, the actual number drilled will be higher.

Increased drilling is planned for South Cuyama and Ventura Avenue fields during the first quarter but Wilmington is scheduled to receive much more activity than any other field. Operators plan to drill some 20 wells there in both January and February. All in all, the forecast showed that drilling will continue to be very scattered, with 1950's new field discoveries receiving only a very small portion.

Most recent oil discovery was in Orange County, 1½ miles south of Anaheim. There last week P. A. Doheny 1 Holsinger on a 24-hour pumping test produced 90 bbl. of 8°-10°-gravity crude from a 4,500-ft. sand. The well is located in Section 22-4s-10w. Nearby deeper dry holes have been drilled on its east, northwest, and west flanks.

In the San Joaquin Valley region, a closely watched wildcat is Shell Oil Co. 1 Security, on the western flank of the west-side trend of production in Kern County. At the week end, 4½ and 4¾-in. casing had been run to 5,215 ft., to which depth hole had been plugged back from 5,500 ft. Located in NE Section 26-28s-19e, the wildcat is about 4 miles southwest of Bacon Hills production. It is about 6 miles northeast of the Carrizo Plains area where Independent Exploration and Reid Exploration companies drilled dry holes in 1949.

Among the new wildcats staked was the D. D. Feldman Oil & Gas Co. 8-1 Woodward-Reynolds unit in Section 13-8n-1w, Yolo County. It will be a northwest extension attempt to Winters gas field. At Fruitvale, near Bakersfield in Kern County, a northwest extension test has been staked by Rio Hondo Oil Co. while Campbell and Shell will attempt to extend production on the west side. The former will be in SE Section 16 and the latter in NE Section 28-29s-27e.

In the Mountain View area southeast of Bakersfield, Independent Exploration Co. has staked a 5,000-ft. Santa Margarita test between that field and South Edison. It will be the 1 Means, in NW Section 34-30s-29e.

Nevada activity.—In White Pine County, Nevada, Standard Oil Co. of California and Continental Oil Co. were preparing to set 13⅜-in. surface casing at 503 ft. at their joint 1 Hayden Creek. This wildcat, in Section 17-15n-59e, is about 20 miles east of their first test which was abandoned at 10,314 ft.

Northwest of this activity and in Eureka County, George Hadley reportedly has a cable-tool test under way in the Sulphur Springs Range area. Located in SW Section 13-27n-52e, the wildcat is about 45 miles southwest of Elko and on the Roger Bruffey ranch.

CALIFORNIA SUCCESSFUL WILDCAT

Fresno County, ¼-mile northerly extension to Guijarral Hills: Standard Oil Co. 354 27 F, 27-20s-16e, flowed at the rate of 11 bbl. per day through perforations at 8,095-53 ft., 36.8°-gravity, 0.1 per cent cut, base Allison 8,127 ft., TD 8,510 ft., elev. 584 ft.

CALIFORNIA WILDCAT FAILURES

Kern County, Arvin area: Gene Reid Drlg. Co. 26-30 Woodworth, 30-31s-30e, dry, top Schist 5,098 ft., TD 5,103 ft., elev. 444 ft.

Edison Groves area: Trico Oil & Gas Co. 1 State Explor., 33-29s-29e, dry, top Vedder 5,178 ft., TD 5,515 ft., elev. 663 ft.

Media Agua Creek area: E. T. Willard 1 Wright, 23-28s-19e, dry, TD 2,297 ft., elev. 1,300 ft.

Sievert area: Peerless Associates 1 Gross, 26-30s-30e, dry, TD 1,900 ft., elev. 1,720 ft.

Santa Barbara County, South Cuyama area: Crawford & Hiles 1 Crawford-Hiles, 34-10n-27w, dry, old TD 5,515 ft., deflected and redrilled from below surface casing, new TD 4,585 ft., elev. 2,590 ft.

Southwest Lompoc area: Hugh B. Martin 3 Beuterbaugh, 18-7n-34w, dry, TD 1,669 ft., elev. 136 ft.

Cat Canyon area: Sunray Oil Corp. 45-21 Los Flores, 21-9n-33w, dry, TD 6,897 ft., elev. 1,081 ft.

South Louisiana

Good New Field Opened Near Vinton Townsite

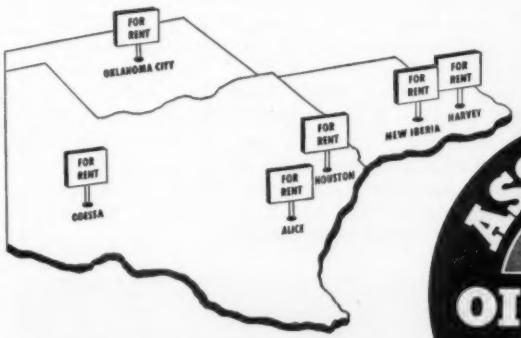
NEW ORLEANS.—Sun Oil Co. 1 Brooks, 20-10s-12w, Calcasieu Parish wildcat, indicates the opening of a good field approximately 1¼ miles west-southwest of the Vinton townsite. Drilled to a total depth of 11,002 ft., operators perforated the interval

DRILL PIPE
FOR RENT

ALSO

- DRILL COLLARS
- KELLYS
- Kelly Drive Bushings
- CORE BARRELS
- SAFETY JOINTS
- ROTARY SLIPS
- Blowout Preventers
- ROTARY TONGS
- ELEVATORS
- ROTARY SUBS

Why tie up operating capital when you can RENT the drilling equipment you need from "ASSOCIATED"! All drill pipe and tools are maintained in excellent condition, ready for immediate delivery on rental basis! All six conveniently located rental yards (listed below) are equipped to give you fast, 24-hour service!



ASSOCIATED OIL FIELD RENTALS INC.

MAIN OFFICE — HOUSTON, TEXAS

HOUSTON, TEXAS
Phone CApitol 9596

OKLAHOMA CITY
Phone 62-3555

ALICE, TEXAS
Phone 1348

NEW IBERIA, LA.
Phone 1553-J

ODESSA, TEXAS
Phone 2331

HARVEY, LA.
Phone UPtown 8585

10,868-80 ft. for production tests. The well is cleaning approximately 150 bbl. of 46°-gravity clean pipe-line oil per day through ⅛-in. choke. Tubing pressure rose to 5,000 psi. and dropped to 2,300 psi.

Bateman Drilling Co. has abandoned a wildcat in Pointe Coupee Parish after discovering what apparently was a small reservoir that could not be produced in commercial quantities. The well, 1 Callicot, 46-5s-8e, is bottomed at 10,876 ft. with casing cemented at 10,007 ft. Oil sand was encountered from 10,654-75 ft. Considerable testing was conducted before it was apparent the well could not be produced in commercial quantities.

Another disappointing wildcat was abandoned in Beauregard Parish at Edwin L. Cox 1 Lutcher Moore, Inc., 29-5s-11w, 1½ miles east and ½ mile south of West Pine Grove discovery. Core at 7,535-45 ft. recovered 2 ft. of sandy lime; core at 7,545-80 ft. recovered shale, and core at 7,580-90 ft. recovered 9 ft. of water sand. Abandonment was at 8,517 ft.

State potential has been run on Niloco Co.'s semiwildcat located ½ mile north of the DeQuincy field, Calcasieu Parish. The well, 1 Industrial Lumber Co. "C," 35-7s-11w, flowed 119 bbl. of 24.9°-gravity oil daily through 7/64-in. choke. Hole is bottomed at 6,850 ft. and the producing depth is 5,218-20 ft.

The 28 new locations include 2 wildcat starts, 1 each in Plaquemines and Pointe Coupee parishes. There were no successful exploratory wells completed, however, three were reported dry, one each in Avoyelles, Calcasieu, and Livingston parishes.

SOUTH LOUISIANA WILDCAT FAILURES

Avoyelles Parish: Pan Am Southern and Harper-Turner 1 Laborde, 36-2n-5e, dry, TD 9,705 ft.
Calcasieu Parish: Sun Oil Co. 3 Lutcher-Moore, 2-8s-13w, dry, TD 7,803 ft.
Livingston Parish: N. B. Hunt 1 Currie-O'Brien, 3-9s-6e, dry, TD 10,700 ft.

Mississippi

Completion Made Between Two Adams County Fields

JACKSON.—Final completion has been made on R. J. Bartlett-Barnett Serio 1 George W. Armstrong, 37-6n-3w, between Carthage Point and Glen Aubin fields, Adams County. Through perforations in the Wilcox at 6,325-27 ft., on potential test, the well pumped through tubing and flowed through casing at the rate of 88 bbl. of 41.8°-gravity oil per day, plus 37 bbl. of salt water. Operators have been attempting to complete this discovery since October 1950. Most of the delay has been caused by unsuccessful attempts to shut off salt water from bottom part of the sand. The new field has been named New Era.

At Continental Oil Co. 1 John R. Cameron, deep Madison County wildcat, 36-10n-1e, top of the Cotton Valley was picked at 11,070 ft. (—10,870) by samples. Top of the Hosston gravel section was picked at 9,710 ft., which gives this section a thickness of 1,360 ft. As far as is known, this is the thickest Hosston gravel section that has been encountered in the state. Two sands were logged at 10,560-71 ft. and 10,689-99 ft., with the water level immediately underneath each zone. Operator drilled through the upper sand section and cored the lower one. An unsuccessful drill-stem test was conducted at 10,678-10,701 ft. Proposed depth is 15,000 ft. to test the Smackover zone. The company has revealed that it will continue toward contract depth before running casing to test the two sand sections.

At another prospective Wilcox pool opener, Southern Production Co. and William Hellis B-1 George Armstrong, 19-5n-2w, is at total depth of 6,765 ft. and production casing has been run to 6,760 ft. and cemented with 500 sacks. Eleven feet of saturated sand in the Barksdale zone of the Wilcox were encountered at 6,512-26 ft. Electric log and core analysis also indicated a possible productive zone at 6,292-96½ ft. and 6,304-06 ft. A 15-minute drill-stem test was run at 6,292-315 ft. with recovery being 575 ft. of 52.5°-gravity oil and no salt water.

MISSISSIPPI SUCCESSFUL WILDCAT

Adams County: Oil discovery, "New Era"—R. J. Bartlett-Barnett Serio 1 George W. Armstrong 37-6n-3w, TD 6,761 ft., perf. Wilcox 6,325-27 ft., IP: 88 bbl. oil per day, pumped through tubing and flowing through casing 41.8° gravity.

MISSISSIPPI WILDCAT FAILURE

Adams County: Serio - Latimer - Peterson Drilling Co. 1 E. Willard, 31-6n-1w, dry, TD 6,765 ft.

Southwest Texas

Good Producer Seen in Edwards Lime Discovery

CORPUS CHRISTI.—With assurance of a nice oil producer, Lone Star Gas Producing Co. is considering further perforations and tests at 1 Sarah E. Ferry, I&GN Survey, Section 1699, Abstract 431, Edwards lime discovery in Atascosa County. The well recently flowed 128 bbl. of 33°-gravity oil per day through 3/16-in. choke. Production was through perforations at 8,208-30 ft. Operator is convinced that he has approximately 10 ft. more interval before hitting the water level and will probably perforate an additional 4 or 5 ft. This is reportedly where electrical survey and cores indicated the best permeability in the Edwards lime. Exhaustive tests will be made before the discovery is placed on potential test.

A new oil discovery for Frio County in Milam Drilling Co. 1 W. L. Pickens, Austin & Williams Survey 694, Abstract 10, 2 miles west of Hindes. On potential test, the well pumped 74 bbl. of oil per day. Total depth of the well is 5,620 ft. and exact producing depth is unknown at present.

Clardy & Barnett has run a potential gage on 1 O. G. Kirkpatrick, oil discovery approximately 3 miles west of Leaseholders field in Webb County. The well made 22 bbl. of 40.8°-gravity oil per day on pump through perforations at 2,295-300 ft. The producer was drilled to a depth of 2,350 ft. and 5½-in. pipe run to 2,340 ft. for completion. It is located in Block 1, CCSD&RGNG RR Survey 26, 20 miles southwest of Freer.

Three miles north of Poteet townsite in Atascosa County, McFarland Drilling Co. 5 Henrietta Krisch, et al, J. Durks Survey 1207, has been completed for 126 bbl. of 44°-gravity oil daily through ¼-in. choke. The well is the second to be completed in an area surrounded by dry holes and is classified as a discovery in the Poteet area. Completion was made in the Anacacaho lime at 3,559-69 ft. Tubing pressure was 300 psi., casing sealed.

The 48 new locations include 6 wildcat starts, 1 each in Duval, Hidalgo, San Patricio, and Webb, and 2 in Caldwell County. There were no successful wildcats completed, however, seven were reported dry, one each in Jim Hogg and Zapata counties, two in Bastrop County and three in Jim Wells County.

SOUTHWEST TEXAS (DISTRICTS 1 AND 4) WILDCAT FAILURES

Bastrop County: Fred J. Adams 1 Gifford Hanna, Freeman Wilkerson League, 2 mi. NW of Red Fork, dry, TD 2,406 ft.
Earl P. Corley 1 Annie Hoffman, et al, Jacob G. Lenz Sur., dry, TD 3,164 ft.
Jim Hogg County: Rincon Drilling Co. 1

HOW IS THE "WORKING SURFACE" —the Vital I. D. of your Casing?

YOU CAN SAFELY, easily and economically remove burrs from gunshot holes, imbedded bullets, or sheaths of cement or hardened mud from the inner wall of casing. ★ No more cut and torn rubber swab cups, or rubber packing elements on testers, packers and cement retainers. ★ The strong, safe Baker ROTO-VERT Casing Scraper has two sets of deeply hard-faced blades which shear away all obstructions and overlap to scrape the full 360-degree inner surface of casing. ★ Cannot "screw down" past gunshot burrs because the cutting edges follow the contour of a LEFT-HAND screw. ★ Specify the ROTO-VERT when there are hundreds of burrs to be removed, or the well is to be scraped from top to bottom. ★ You can still use time-tested Baker Model "B" Casing Scraper, Product No. 620-B, for normal scraping when rotary equipment is available.

ROTATE IT OR SPUD IT!
Your casing really "comes clean" when you use the successful BAKER ROTO-VERT
Product No. 620-C . . . . Model "C" Casing Scraper

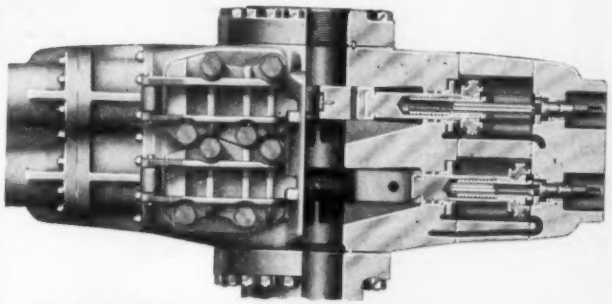
BAKER OIL TOOLS, INC.
HOUSTON • LOS ANGELES • NEW YORK

No Matter What Your Need—

THE SHAFFER LINE OF PRESSURE CONTROL EQUIPMENT IS THE MOST COMPLETE IN THE INDUSTRY!

Shaffer gives you a choice of either *Hydraulic* or *Mechanical* Cellar Control Gates—plus a full range of other pressure control equipment!

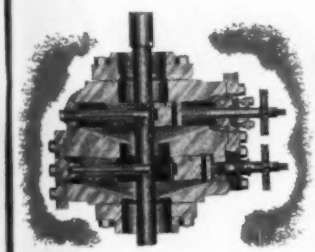
Regardless of your pressure control requirements, there's a Shaffer product to fill them . . . *Hydraulic* Cellar Control Gates . . . *Mechanical* Cellar Control Gates (both *Single* and *Double*) . . . Combination Rotating Blowout Preventers and Strippers . . . a complete line of advanced Casing and Landing Heads . . . various types of Tubing Heads, Flow Beans and other equipment for *every* pressure control requirement. The unusually diversified line of Shaffer field-tested equipment includes . . .



SHAFFER HYDRAULIC CELLAR CONTROL GATES—the most advanced, most compact, most efficient hydraulically-operated gates on the market.

- Two separate ram compartments unitized into *one* compact body for maximum protection and space saving.
- Even in sizes as large as 13⅜" you get *two* ram compartments in an overall height of only 30"—*smaller sizes even less!*
- Completely enclosed—no outside moving parts to become damaged or corroded by chemical muds dripping into cellar.
- New simplicity in changing rams—simply unbolt and open two doors, change rams, then close and bolt the doors. A new high in simplicity, speed, convenience!

The above are only a few of the *many* far-reaching advancements designed into the new Shaffer Hydraulic Cellar Control Gate. Available in a full range of sizes and pressure ratings. Write for full details!

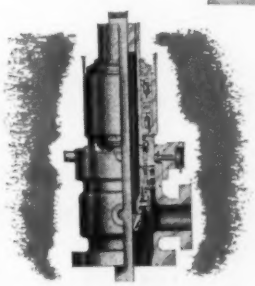


Shaffer Double Cellar Control Gates—the famous *mechanically* operated cellar control gates used by leading operators throughout the world.

- Can be operated by *any* type of power—air, electric or steam drive—*plus added protection of full manual standby!*
- *Two* ram compartments in *one* body assures maximum space-saving compactness . . . less than 29" overall height in sizes as large as 13⅝"—smaller sizes even less.
- Rams are quickly changed by simply removing one end cover—an easy, simple operation.

Shaffer Double Cellar Control Gates also provide many other unique features and are available in a full range of sizes and pressure ratings to meet any requirement.

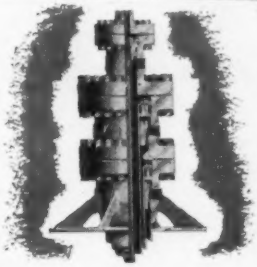
For applications where maximum conservation of vertical space is not essential, Shaffer also features a complete line of mechanically operated *single* Cellar Control Gates.



Shaffer Combination Rotating Blowout Preventer and Stripper—combines in *one* unit every necessary feature for complete and fool-proof pressure control while drilling under pressure . .

- Maintains continuous seal around all elements in the drill string—square, hexagonal, octagonal or round—rotating or not.
- Automatically expands and contracts to fit varying diameters in the string such as tool joints, couplings and drill collars.
- Not only maintains its seal while the drill string is rotating, but also while stripping pipe in or out of the well.
- Quick-Releasing Bonnet permits passing abnormally large tools such as bits and reamers through the unit quickly and conveniently.

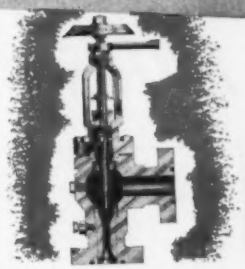
There is nothing as *complete*, as *advanced*, as *simple* as this Shaffer unit for maintaining complete pressure control while the drill string is rotating or being stripped in or out of the well!



Shaffer Landing, Casing and Tubing Heads—used in all major oil producing countries throughout the world for modern compact casing or tubing suspensions.

- Available in many types and various packing arrangements, including types where no internal threads are used for holding packing element in place.
- For maximum compactness, Base Heads and Combination Base, Casing and Tubing Heads are available that combine several units in one.

From Shaffer you can also obtain a full line of advanced Tubing Heads, Multiple Zone Hook-Ups and other equipment to complete your pressure control installation.



Shaffer Adjustable Flow Beans—provide means for controlling the flow of fluid under pressure. Shaffer pioneered Adjustable Flow Beans and offers a wide range of different types for drilling, production and refinery operations—all embodying unique advancements found nowhere else. Shaffer Adjustable Flow Beans are available with Conical, Micro and electrically-heated Thermo Tips in both regular and hard metal designs. All popular sizes—both flanged and screwed connections to meet any installation requirement.

Write for the new Shaffer Catalog that describes Shaffer products in greater detail!

See pages 4433 to 4496 of the 1950 Composite Catalog.

27 YEARS OF OIL TOOL LEADERSHIP

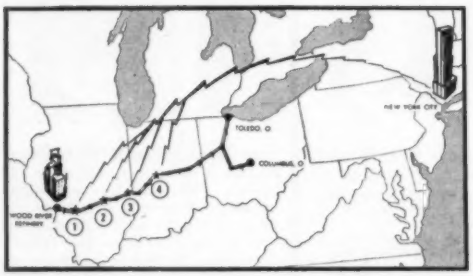
SHAFFER

HIGH PRESSURE DRILLING AND CONTROL EQUIPMENT • FISHING TOOLS THAT EXCE

SHAFFER TOOL WORKS, Brea, California • California Service Shops: Santa Fe Springs and T
HOUSTON, TEXAS, 6055 Navigation Blvd. • ODESSA, TEXAS, 1925 West Second Street
OKLAHOMA CITY, OKLAHOMA, Acme Oil Tool Company, 1001 S. E. 29th Street
CASPER, WYOMING, Shaffer Tool Works, Post Office Box 1788
EXPORT SALES OFFICE: Shaffer Tool Works, 501 Fifth Avenue, New York, N. Y., U.S.A.

With no station operator needed, G-E switchgear (right)—containing main motor starters, relays, and meters to indicate pressure and load—activates station pumping operations in proper sequence on teletyped signals from central dispatcher (top left).

AUTOMATIC pumping-station operation!



From almost halfway across the country, central dispatcher in New York's Radio City controls flow of 22 different products through 4 new booster stations in Illinois and Indiana. Thanks to the combined efforts of Shell, A.T. & T., and G-E engineers, line capacity is now up by 168,000 gallons a day, with man-hour needs kept to a minimum.

G-E engineering and equipment in 4 new remotely-controlled Shell stations help boost line capacity, cut man-hour costs

A central dispatcher in New York dials some code numbers. Hundreds of miles away—in one of four new booster pumping stations on Shell Oil Co.'s East Products Pipeline—General Electric switchgear, control, and accessory equipment goes into action. In proper sequence, motorized valves are opened and closed, pump motors started and stopped, operating reports sent, or the station's single maintenance attendant summoned for an emergency—all automatically!

G-E engineering and equipment—which played a major part in this first application of long-distance automatic remote control to pipeline stations—can help electrify *your* pipeline as well for higher throughput, lower costs. Your G-E representative will gladly show you how. *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.*

Everything you need to cut oil pipeline costs —ELECTRICALLY!

GENERAL ELECTRIC 661-24

Roy Yeager, Sur. 108, approximately 6 mi. W-SW of Hebronville, dry, TD 3,174 ft.

Jim Wells County: D. E. Clark & A. A. Moore 1 Lynn Dugger, Tract 4, Sur. 8, A-329, 7 mi. NW of Orange Grove, dry, TD 4,809 ft.

Fred M. Manning, Inc. 1 Dorris-Plachy-Morrow, J. G. de la Garza Montmayor Grant, 4½ mi. S of Mathis, dry, TD 4,103 ft.

Edwin W. Pauley 1 Dr. Jose G. Garcia, San Diego de Arriba Grant, A-155, dry, TD 5,269 ft.

Zapata County: O. W. Killam 2 H. Vela, Sur. 1, 20 mi. S of Mirando City, dry, TD 3,245 ft.

Kansas

Seward County Wildcat Flows Gas-Distillate

A MAJOR northward extension of gas-distillate production in the Light Ranch area on the Oklahoma-Kansas line appears in prospect with the testing by Jomilson Producers, Inc., of its 1-B Light, C SW 11-35s-32w, east of Liberal, southern Seward County, southwestern Kansas. With casing perforated at 5,900-6,007 ft. and at 6,020-30 ft. opposite the Morrow sand section, the well is reported to have flowed 50,000,000 cu. ft. of gas with 500 bbl. of distillate per day through 2-in. line before being shut in for additional tankage.

Major flow is believed from final perforations at 6,020-30 ft. Casing first was perforated at 5,940-90 ft., where a small gas flow resulted. Additional perforations extending the producing zone from 5,900 ft. to 6,007 ft. increased the flow to an estimated 5,500,000 cu. ft. per day. Following this the lower interval at 6,020-30 ft. was opened.

Barnett Drilling Co. and associates are opening another new pool in Graham County, northwest Kansas, where their 1 Moore, SE SE SE 20-8-22, swabbed 5 bbl. of oil per hour while testing a Lansing-Kansas City lime zone, opposite which casing is perforated at 3,635-39 ft. Top of the Lansing was logged at 3,457 ft. (—1,255 ft.). Total depth is 3,895 ft. in Arbuckle, topped at 3,859 ft. (—1,657 ft.), and in which casing was run to 3,895 ft. The location is several miles southeast of Hill City in the central part of the county.

Sumner County, in the southern part of the state, is getting a new Arbuckle lime pool. Texas Pacific Coal & Oil Co. 1 Metz, NE NE NW 7-32-2e, in the east part of the county, flowed 110 bbl. of oil on a 15-hour gage. Top of the Arbuckle is 3,773 ft. (—2,528 ft.). Hole is open below 3,776 ft. to total depth of 3,779½ ft. The well also is a potential discovery in Simpson sand, topped at 3,731 ft. (—2,486 ft.). A drill-stem test of the top 20 ft. of that sand yielded 380 ft. of free oil and 50 ft. of oil-cut mud. The discovery is located 1½ miles northwest of the West Oxford pool in the eastern part of the county.

Gaty-Graham 1 Graham, SW SE NE 5-2s-3e, a wildcat in southwestern Butler County, flowed at an estimated rate of 100 bbl. of oil per day while testing Simpson sand at 3,069-72 ft. Hole is open below 3,065 ft. Location is 2 miles southeast of the South Andover pool, nearest production, and 4 miles northwest of the Salter pool.

W. L. Hartman 1 Werner, SW NW NW 30-19-11, a new discovery well located just north of Ellinwood, Barton County, swabbed 37 bbl. of oil in 3 hours in intial tests in Lansing-Kansas City lime, opposite which casing is perforated at 3,106-15 ft. Top of the section is 3,088 ft. (—1,289 ft.). The well had been drilled to the Arbuckle, logged at 3,392-3,400.

KANSAS SUCCESSFUL WILDCATS

Barton County: Petroleum, Inc., 1 Benjamin, NE SE SW 31-20s-13w, pumped 395 bbl. oil from Arbuckle at 3,542-43 ft., TD 3,592 ft.

Ellis County: Glickman-Veeder 1 Tholens, SW NW SE 22-14s-16w, pumped 251 bbl. oil from 3,118-21 ft., and 3,258-62 ft., TD 3,409 ft.

Meade County: Skelly 1 McKinney "B," SW SW NE 35-33s-26w, flowed 9,900,000 cu. ft. gas from 5,633-5,708 ft., TD 6,064 ft.

Phillips County: Imperial 1 Vogel, SE SE NE 14-3s-19w, pumped 503 bbl. oil from Lansing-Kansas City at 3,145-50 ft., TD.

Rooks County: Derby et al 1 Whisman, NW NW SE 9-9s-20w, pumped 5 bbl. oil from 3,427-36 ft., TD 3,702 ft.

KANSAS WILDCAT FAILURES

Barton County: Holl 1 Wendel, NE SW NE 1-19s-11w, dry, TD 3,417 ft.

Adair 1 Wilborn, SW SW NE 14-16s-13w, dry, TD 3,404 ft.

B & R 1 Breford, SE SE NE 23-16s-11w, dry, TD 3,400 ft.

Lindas 1 Bortz, SW SW SW 32-17s-11w, dry, TD 3,380 ft.

Butler County: Rex & Morris 1 Windsor, SE NW NW 18-23s-5e, dry, TD 2,457 ft.

Cowley County: Lehmann et al 1 Hensley, SE SE SW 15-30s-7e, dry, TD 2,881 ft.

Crest 1 Miller, NE NE SW 14-32s-7e, dry, TD 3,034 ft.

Dickinson County: Inland 1 Meyers, SE SW SW 29-16s-1e, dry, TD 2,723 ft.

Ellis County: Derby 1 Johnson "A," SE SE SW 9-11s-18w, dry, TD 3,550 ft.

Jones-Shelburne & Farmer 1 Werth, NW NW NW 15-15s-19w, dry, TD 3,660 ft.

Ellsworth County: Continental Oil Co. 1 Handlin, NE NE NW 18-17s-7w, dry, TD 3,466 ft.

Graham County: Peel-Hardman 1 Shughart, SW SW NW 8-7s-25w, dry, TD 4,225 ft.

Barnett 1 McClellan, NW NW NW 7-10s-21w, dry, TD 3,957 ft.

Greenwood County: Cameron 1 Ulrick, SE SE NE 4-24s-12e, dry, TD 1,830 ft.

Southwestern Producing Co. et al 1 Hod-

Pumps

. . . . FOR THE OIL INDUSTRY

Exclusive twin jet design advantages give C.M.C. Dual Prime Pumps longer life, minimum maintenance and outstanding operating performance.

They are simple, rugged, fool-proof—and every pump is tested under most severe conditions.

Automatic priming speed on lifts up to 25′ is unmatched. Sizes 1½″ to 10″—3,000 to 240,000 G.P.H.

Write today for full details — our qualified engineers will gladly help solve your pump problems.

Two C.M.C. Dual Prime Model 420 Pumps loading lub-oil for Mid-Continent Petroleum Corporation at Odessa, Texas.

CONSTRUCTION MACHINERY COMPANIES
WATERLOO, IOWA

AXELSON
First Choice

For top performance at the bottom of the well, specify Axelson Seats and Balls.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

PETROLEUM EQUIPMENT SUPPLIERS ASSOCIATION MEMBER

ASK AN AXELSON EXPERT

AXELSON MANUFACTURING CO. • PLANTS – Los Angeles 58; St. Louis 16 • OFFICES – New York City 7, Tulsa 1, Buenos Aires, Argentina, Caracas, Venezuela • DISTRIBUTORS – Jones & Laughlin Supply Co.; Great Northern Tool & Supply Co.; Industrial Agencies, Ltd., San Fernando, Trinidad, B.W.I.; Industrias Waldrip & Campbell, Barcelona and Maracaibo, Venezuela; Dominion Oil Field Supply Co., Ltd., Calgary, Canada; South American Supply Co., Avenida Tacna 592, Lima, Peru.

JENSEN increases your Profit "Allowable"

The law says what your oil allowable is, but your pumping unit says how much you're allowed for profit—after taking out costs for initial investment, operation, repairs and maintenance.

The mass produced Jensen costs less to buy; precision gears and anti-friction bearings cut operating costs and rugged field tested design keeps repairs and maintenance at a minimum.

Yes, Jensens allow you more profit. See your Jensen dealer or write to Coffeyville for complete information.

JENSEN Bros. Mfg. Co.

Coffeyville, Kansas, U. S. A.

Export Office: 50 CHURCH STREET, NEW YORK CITY

Free Your "Hands"

for other important work . . . use

GEOLOGRAPH

MECHANICAL WELL LOGGING SERVICE

Geolograph gives you accurate drilling time, guide for bit change, round trip time and shut-down time. Reduces number of failures in drill stem testing! This data — and more — you get with Geolograph — while, at the same time, it frees your "hands" for other important work!

HOUSTON, ODESSA & WICHITA FALLS, TEX. • CASPER, WYO. SHREVEPORT & BATON ROUGE, LA. • BAKERSFIELD, CALIF.

"TIME WILL TELL"

THE GEOLOGRAPH CO. INC.

P. O. Box 1291 Oklahoma City 1, Okla.

son, SW SW SE 23-26s-12e, dry, TD 2,043 ft.

Epp 1 Winn, SE SW SE 4-26s-11e, dry, TD 2,053 ft.

Harvey County: Gaty 1 Fluke, SW NW SW 31-24s-2e, dry, TD 3,000 ft.

Rooks County: Dunne & Boering 1 Ellis, SE SW SE 36-7s-19w, dry, TD 2,457 ft.

Barnett et al 1 Baumgartner, NE NE SW 31-9s-18w, dry, TD 3,760 ft.

Stafford County: Peel-Hardman 1 McNaughton, SE SE NW 22-24s-13w, dry, TD 4,193 ft.

Wabaunsee County: Brack 1 Uhlrig, NE NE NE 13-10s-10e, dry, TD 3,206 ft.

Rocky Mountain

Two Important Wildcats Test Gas in Paradox

DENVER.—Two new wells along the Colorado-Utah line in the Four Corners area are of outstanding interest for gas prospects in this district. Byrd-Frost has run casing at 1 Sitton, C NE SE 17-33s-25e, Montecello wildcat, San Juan County, New Mexico. The well is in upper Paradox at 5,831 ft., total depth. On drill-stem test at 5,738-5,831 ft., it made an estimated 3,000,000-4,000,000 cu. ft. of gas daily, with shut-in pressure 1,980 psi. and bottom-hole flowing pressure 380 psi. This is Byrd-Frost's second well in the general area and the first venture also had gas shows in the Paradox, but tests did not show the well to be commercial. Following completion of the first well, Byrd-Frost made a gas-distillate discovery 30 miles southeast at Dove Creek, Colo., following acid treatment in the Paradox zone. The operator considered retesting the old hole at Montecello but decided to move in on a new well. Six miles northeast of the Byrd-Frost discovery, Woody Hawkins is now preparing to test 1 Government, C NE NW 13-39n-20w, a semiwildcat in the general Dove Creek area, Dolores County, Colorado. The well found Shinarump at 2,710 ft., Rico at 4,645 ft., Hermosa at 4,845 ft., and is now in the top of Paradox at 6,361 ft., total depth. Fluorescence was logged at 6,345 ft. in the well and a part of the Paradox section drilled very fast. The mud was heavily gas and distillate-cut and the operator has weighted the mud to 10.8 lb. Both of these wells are of particular importance in a current effort by Utah Pipe Line Co. (in which Clint Murchison of Dallas, Byrd-Frost, and others have an interest) to acquire a permit from the state of Utah for a gas line from the Four Corners area into Salt Lake City. One of the problems has been to find sufficient gas reserves in Utah to warrant such a line.

New wells in the Clareton area, Weston County, Wyoming, will apparently extend the known producing limits of this field. A. L. Schlaikjer of Newcastle is now testing 1 Government, NE NW NW 21-43n-65w, with the test flowing at the rate of approximately 250 bbl. of oil daily from Newcastle topped at 6,244 ft. This well is south of production in the field. Morton Oil Co. will apparently make a small producer at 1 Van Herwynen, C SW SE 9-54n-65w, 1½ miles northeast of previous production. This pool now extends over a 2-mile northeast-southwest area with five producing wells completed. Considerable additional drilling is expected in the area during year.

In Colorado, E. R. McElroy and P. R. Clark of Denver made location for 1 Grimm, SE SW SE 28-7n-55w, a wildcat in the Willard area 2 miles south of a recent wildcat failure drilled by these operators. Vaughey & Vaughey of Jackson, Mississippi, have started their first operation in the Rocky Mountains with location at 1 Merle Carey, NW NW SE 21-9n-53w, Mount Hope area, Logan County. The well is north of production in the field and will be a Dakota series test.

WYOMING WILDCAT FAILURES

Dull Center area, Converse County: A. B. Cobb & Superior 1 Unit, C SE SE 5-40n-68w, TD 10,060 ft., dry, Pierre 4,520 ft., Shannon 5,355 ft., Niobrara 7,425 ft., Niobrara chalk 7,895 ft., Carlisle 8,067 ft., Frontier 8,218 ft., Graneros 8,360 ft., Muddy 9,250 ft., Dakota 9,420 ft., Fuson 9,497 ft., Lakota 9,530 ft., Morrison 9,600 ft., Sundance 9,720 ft., Spearfish 9,994 ft.

North Alkali Butte, Fremont County: Atlantic Refining Co. 1 Tribal, CS½ SE SE 29-1s-6e (WRM), TD 9,569 ft., dry, Cody 1,645 ft., Frontier 5,467 ft., Muddy 6,793 ft., Dakota 6,966 ft., Lakota 7,113 ft., Morrison 7,134 ft., Sundance 7,395 ft., Nugget 7,700 ft., Chugwater 8,000 ft., Dinwoody 9,080 ft., Phosphoria 9,145 ft., Tensleep 9,480 ft.

Southeast Castle Creek, Natrona County: Atlantic Refining Co. 1 Government, SE SW SW 32-38n-80w, TD 3,475 ft., Niobrara 1,093 ft., Frontier 1,925 ft., Muddy 3,097 ft., Dakota 3,250 ft., Lakota 3,360 ft., Morrison 3,438 ft.

COLORADO WILDCAT FAILURE

Joes area, Yuma County: McDannald Oil Co. 1 Young, NW NW SW 21-5s-47w, TD 6,395 ft., Pierre 340 ft., Niobrara 1,955 ft., Ft. Hays 2,460 ft., Carlile 2,510 ft., Greenhorn 2,655 ft., Graneros 2,805 ft., Dakota 2,905 ft., Lakota 3,259 ft., Morrison 3,335 ft., Permian 3,780 ft., Blaine 3,930 ft., Stone Corral 4,190 ft., Wreford 4,385 ft., Foraker (?) 4,742 ft., Shawnee 4,918 ft., Lansing 5,265 ft. with show of oil, Des Moines 5,500 ft. with show of oil, Mississippian 6,167 ft., Kinderhook lime 6,181 ft., Cambrian-Arbuckle 6,261 ft., Reagan 6,325 ft.

NORTHERN NEW MEXICO WILDCAT SUCCESS

South Governador, Rio Arriba County: Byrd-Frost, Inc. 1 Nickson, C NE NE 33-28n-7lw, TD 5,210 ft., flowed 487,000 cu. ft. gas, Pictured Cliffs 2,692 ft., Cliffhouse 4,283 ft., Menefee 4,410 ft., Point Lookout 4,878 ft.

NEBRASKA WILDCAT SUCCESS

West Sidney, Cheyenne County: Ohio Oil Co. 1 State, NW NW SW 16-13n-50w,

Eagle-Picher Lead Wool

Stops bottom water

Prevent costly shutdowns, keep bottom water out of your wells, with effective, economical Eagle-Picher Lead Wool. The fine, flexible strands fill cracks and crevices with a permanent, non-corrosive seal . . . save you time and money. Packed in convenient 50-pound sacks — easy to place in special cartridge-shaped Eagle-Picher Wire Containers sized to fit all casings. Order through your jobber.

EAGLE EP PICHER

THE EAGLE-PICHER SALES COMPANY

Since 1843

Metallic Products Division, General Office
Box 777, East Chicago, Indiana

Cincinnati · Kansas City · East St. Louis
Dallas · Houston

Member: Lead Industries Association

These 3 Eagle-Picher Bearing Metals meet most requirements

1. **Dreadnaught** — for extreme speed and heavy-duty conditions.
2. **Outlasta** — for medium speed and average-load conditions.
3. **Durable** — for low speed and light-duty conditions.

8,800,000 cu. ft. gas, Niobrara 4,001 ft., Ft. Hays, 4,271 ft., Codell 4,360 ft., Greenhorn 4,542 ft., first Dakota 4,802-34 ft., second Dakota 4,845 ft., third Dakota 4,936 ft., first Lakota 5,146 ft., second Lakota 5,210 ft., Morrison 5,380 ft.

Michigan

Outpost Is Slated for Skeel Dundee Discovery

MOUNT PLEASANT.—Mogul Oil Co. announced the first outpost test to the east of the Skeel Dundee oil discovery this week. The Mogul wildcat, located just short of 2 miles east of the discovery well in Skeels field, Sherman Township, Gladwin County, which was completed late in 1950 by Don Rayburn, will be drilled in the SW NW NE 33-20n-2w, on a block of some 1,080 acres acquired by Mogul in the area since the Rayburn well first showed for commercial completion.

Meanwhile, the first two follow-up tests to the Sherman Township wildcat discovery has been spudded. Sun Oil Co., drilling the diagonal southwest 10-acre offset to the producer, was below 1,300 ft. Don Rayburn, drilling his first follow-up test on the south 10-acre offset, was below 2,700 ft. Both tests should be ready to core Dundee pay objective in the next 7 to 10 days.

Harley Ferrill's 1 Thomas & Marion, NE SE NE 10-8n-5w, North Plains Township wildcat, Ionia County, was reacidized in the Dundee with 500 gal. Production was boosted from 4 bbl. every other day following first acid treatment with the same size acid shot to 25 bbl. first 24 hours, pumping, after the reacidization. Dundee was logged at 2,980 ft. and hole was bottomed out for test with a show of oil natural at 2,987 ft.

Leonard Oil, Inc. 1 Sneden, NE NW NE 23-5n-13w, Jamestown Township wildcat, Ottawa County, the test that showed some 320,000 cu. ft. of gas in the Berea at 1,101-05 ft., was drilled out dry in the Traverse oil objective at 1,913 ft. after top of lime was logged at 1,806 ft. Well may be plugged back and retested in the Berea gas section before final completion.

MICHIGAN WILDCAT FAILURES

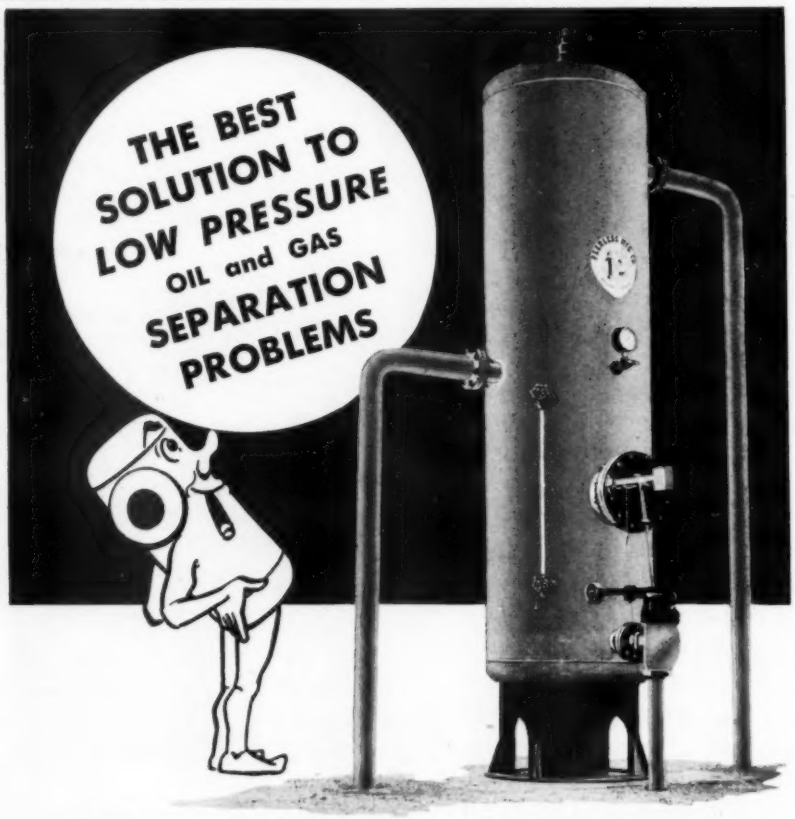
Allegan County, Casco Township: J. A. B. Oil Co. 1 Mady, NW NE NE 12-1n-16w, Traverse 1,187 ft., dry, TD 1,190 ft.

Ganges Township: Ford Oil Co. 1 Dorman, NW SW SE 20-2n-16w, Traverse 1,253 ft., dry, TD 1,261 ft.

Midland County, Hope Township: Lakeland Oil Corp. and Muskegon Development Co. 1 Carey, SE SW SW 22-16n-1e, Dundee 3,838 ft., dry, TD 4,057 ft.

Newaygo County, Garfield Township: Fish & McMillan 2 Frens, NW NE SW 30-12n-13w, Traverse 2,230 ft., dry, TD 2,239 ft.

Wilcox Township: Sun Oil Co. 1 Godfrey, SW NE SE 26-14n-12w, Traverse 2,702 ft., dry, TD 2,856 ft.



PEERLESS *LOW PRESSURE* Oil and Gas Separators

. . . are the product of many years experience, extensive field research, thorough application of physical theory, and sound fabrication methods.

The name "PEERLESS" on an Oil and Gas Separator is your guarantee of high quality fabrication and unequalled performance, for Peerless Separators are Guaranteed Separators.

Peerless Separators will reduce the liquid entrainment loss to less than 1/10th gallon per million standard cubic feet of flowing gas — NO OTHER MANUFACTURER MAKES THIS GUARANTEE!

WRITE FOR BULLETIN 202 or Consult Your Peerless Representative

PEERLESS MFG. CO. DALLAS, TEXAS

PEERLESS MANUFACTURING CO.
Walnut Hill Lane at Old Denton Road
P. O. Box 7193 DALLAS, TEXAS Dixon 4-8431
AGENTS IN: Houston, Odessa, Wichita Falls, and El Paso, Texas. Tulsa, Denver, Phoenix, Los Angeles, Boston, Philadelphia, Cleveland, New York City, Buffalo, Chicago, Richmond.

Texas Gulf Coast

New Wilcox Field Found Near Helen Gholke Field

HOUSTON.—A new Wilcox field is indicated in Victoria County at Kirby Petroleum Co. 1 R. T. Buchanan, et al, which has a reported 34 ft. of oil sand in the Wilcox. Operator cored from 8,127-61 ft. Present coring depth is 8,199 ft. and is reported to be in another sand horizon believed to be a gas sand. The full section will be cored to evaluate the gas zone. Drill site is in the Indiola RR Survey, Abstract 204, 2 miles south-southeast of Helen Gholke field, also an oil reservoir from the Wilcox.

Five miles northeast of Baytown, Commercial Petroleum & Transport Co. finaled 1 Herbert S. Crawford Unit as a new oil discovery for the area. The wildcat was drilled to a total depth of 6,769 ft. in sidetracked hole and 5½-in. casing was set at 6,557 ft. Perforations were made from 6,362-67 ft., and on potential test the well flowed 179 bbl. of 29.5°-gravity oil daily through 9/64-in. choke. Tubing pressure was 650 psi. The new discovery is located in the Christian Smith Survey, Abstract 69, Harris County. Operator has staked location for a 530-ft. west offset to the discovery. The new well is the 1 W. D. Vigie Unit.

In the Altair area of Colorado County, Superior Oil Co. D-1 Mrs. Matilda Tait, John Byrne Survey, Abstract 10, flowed 52 bbl. of 49.8°-gravity distillate plus 2,382,000 cu. ft. of gas per day on test. Test was made from open hole at 10,448-58 ft. Operator is reported coring ahead below 10,567 ft. Proposed maximum depth is 13,000 ft.

Union Producing Co. has set 7-in. casing at 8,056 ft. in its 1 Brown, wildcat test 2½ miles northeast of Doty in Orange County. The well was drilled to a depth of 8,300 ft. and on drill-stem test from 7,950-60 ft., operator is reported to have had a good recovery of gas and condensate. Bottom-hole flowing pressure was 3,500 psi.

The 54 new locations include 10 wildcat starts, 1 each in Bee, Calhoun, Goliad, Jackson, Live Oak, Refugio, Victoria, Harris, Liberty, Montgomery, Orange, and Fort Bend counties, and 3 in Karnes County. There were six successful exploratory wells completed, one each in Jackson, Refugio, Chambers, Fort Bend, Matagorda, and Wharton counties, while eight were dry, one each in Jackson, Refugio, Chambers, Harris, and Liberty counties, and three in Bee County.

3) SUCCESSFUL WILDCATS TEXAS GULF COAST (DISTRICTS 2 AND

Chambers County: Oil discovery—Humble Oil & Refining Co. F-1 Galveston Bay

State, Trinity Bay area, Galveston Bay Sec. 26-A, TD 9,050 ft., perf. 8,298-8,306 ft., IP: 176 bbl. oil per day on initial test. No potential test made.

Fort Bend County: Gas discovery—Harold Link 2 Horelica, H&TC Sec. 66, P. F. Ward Sur., A-462, TD 5,321 ft., perf. 5,246-53 ft., completed as gas well, no potential taken.

Jackson County: Gas discovery—J. M. Huber Corp. 1 William Classen, James Kerr Sur., ¾ mi. N of Collier field, TD 3,359 ft., perf. 2,806-10 ft., IP: 6,000,000 cu. ft. of gas per day, open flow, TP 1,175 psi., SITP 1,250 psi.

Matagorda County: Oil discovery, Oliver Point area—Brazos Oil & Gas Co. 1 State of Texas "O" (Lse. M-30,064)-State Tract 302, Matagorda Bay, TD 5,907 ft., perf. 5,163-65 ft., IP: 38 bbl. oil per day on 10-hour test; well is shut in waiting on potential.

Refugio County: New pay at Bohm—Arnold O. Morgan 1 Ed Fricke, Esteban Lopez Sur., 5 mi. SE of Woodsboro, TD 6,603 ft., perf. 5,297-301 ft., IP: 79 bbl. oil per day, 6/64-in. choke, TP 875 psi., CP 1,125 psi., 42° gravity.

Wharton County: New pay at Lane City—Sohio Petroleum Co. 2 Mrs. Jennie Beard, Sylvanus Castleman Sur., A-11, TD 5,665 ft., perf. 5,423-28 ft., completed as gas well, shut in waiting on potential test.

TEXAS GULF COAST (DISTRICTS 2 AND 3) WILDCAT FAILURES

Bee County: C. G. Glasscock & Pontiac Refining Co. 1 Mrs. Edith Scott, et al, T. Herencia Sur., A-182, dry, TD 3,402 ft.

Newman Bros. Drilling Co., Alaska Steamship Co. & Calvert Corp. 1 Etta Mae Steinmeyer, Refugio County School Land Sur., A-557, dry, TD 4,800 ft.

Quintana Petroleum Corp. 1 M. E. Brauer, J. Ryan Sur., A-63, dry, TD 6,012 ft.

Chambers County: Sun Oil Co. 1 John H. Jackson Estate, HT&B Sec. 99, A-141, 1 mi. N of Seabreeze townsite, dry, TD 11,516 ft.

Harris County: The Texas Co. 1 Emil H. Marks, John N. O. Smith Sur., 4/10 mi. E of Barker, dry, TD 8,130 ft.

Jackson County: V. G. Schillem, et al, 1 Burns Lipscomb, James L. Vaughn Sur., A-467, dry, TD 3,849 ft.

Liberty County: Freeport Sulphur Co., et al, 1 H. A. Lyons, H&TC RR Co. Sur. 182, 4 mi. W of Daisetta, dry, TD 9,535 ft.

Refugio County: Kirkwood & Morgan, Inc. 2 W. & E. Damman, Jose Miguel & Maria Aldrete Sur., 3 mi. S of Bonnie View field, dry, TD 5,726 ft.

Appalachian Field

Maryland Operation Flows Gas in Chert

PITTSBURGH.—In Garrett County, Maryland, Eberly & Snee 1 Camp Meeting Holiness Association, elevation 2,479 ft., encountered an additional flow of gas at 3,670 ft. The top of the chert was 3,645 ft. After running tools below this depth, the gas now tests 11,885,000 cu. ft.

In Napier Township, Bedford County, southwest Pennsylvania, South Penn et al-Snee & Eberly 1 Jesse B. Miller, elevation 1,666 ft., which has been shut down at a depth of 8,860 ft., encountered gas at this depth. The original open flow was 600,000 cu. ft., which blew down to 160,000 cu. ft. It is now approximately 1,000 ft, below the top of the Trenton. Casing was set at 7,832 ft. In Unity Township, Westmoreland County, Peoples Natural Gas Co. 1-3921 Fred Musnug, elevation 2,100 ft., is shut down at 7,856 ft. Cleaning-out operations to depth of 7,843 ft. were completed and drilling resumed. Gas pocket, which caught fire, was struck at 7,856 ft. The tools are in the hole and the rig will have to be rebuilt.

EXPLOSIONS ?

REDUCE DANGER BY USING

INFERNO

Write for literature on

SAFETY UNITS • • FIRING CONTROLS
SAFETY VALVES • • GAS BURNERS
LIQUID LEVEL GAUGES • • GAUGE COCKS
OIL BURNERS • • AIR CHAMBERS

The INFERNO CO.
Box 1138A
115 RICOU St.
SHREVEPORT, LA.

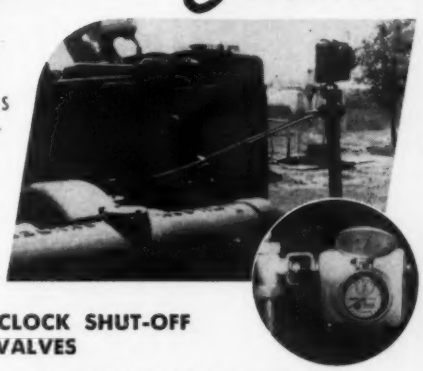
For Sale-Equipment
Equipment Wanted
Help Wanted
Situations Wanted
Leases and Drilling Blocks

WANTED
YOUR CLASSIFIED ADVERTISING
IN
THE OIL AND GAS JOURNAL

A Classified Ad of this size will cost you only $12.00 per issue or $10.80 per issue if ordered 3 or more times.

Classified Advertising Dept.
The Oil and Gas Journal
Box 1260 • Tulsa, Oklahoma

CHECK THROUGH WITH Enardo



CLOCK SHUT-OFF VALVES

Controlled shut-off of low-pressure liquid or gas lines is simple with the Enardo "W" Shut-Off Valve. Engines, boilers, furnaces . . . wherever operating pressures do not exceed 100 lbs. Construction: valve body — high tensile cast iron; exposed, moving parts—stainless steel; valve seat—syntnane and rubber; closing mechanism —a specially designed lever and toggle linkage actuated by a helical tension spring. A dirt, moisture and vapor-proof case encloses clock. 12 or 24 hr. clock cycle. Write for detailed information.

ENARDO
BOX 1647
TULSA, OKLA.

ALTEN
Universal Tubing Head
Gives widest range of applications at the lowest price ever. Compact, rugged, and versatile—all parts clamp together. Converts easily from flowing, to gas lift, to pumping wells.

ALTEN MAKES THE WORLD'S BEST PUMPING UNITS.
ALTEN
The Best in Oil Field Equipment
ALTENS FOUNDRY & MACHINE WORKS, INC.
Lancaster, Ohio

INFERNO

GAS BURNER
The INFERNO "Single Unit" Low Pressure Gas Burner shown above can be built into any size assembly by use of ½" pipe nipples. We furnish steel frames. Burner gives efficient, economical service on 4 oz. to 10 lbs. gas pressure. Write for Bulletin 13-C. Sold direct or through supply stores.
The INFERNO CO.
Box 1138A
115 RICOU St.
SHREVEPORT, LA.

In Crook district, Boone County, West Virginia, Pond Fork Oil & Gas Co. 36-90 Pond Fork Coal Co. gaged 1,000,000 cu. ft. of gas in the shale. Total depth is 2,596 ft. In Harvey district, Mingo County, United Fuel Gas Co. 6660 fee, gaged 1,391,000 cu. ft. of gas in the Salt sand. Total depth is 1,452 ft.

PENNSYLVANIA WILDCAT FAILURE

Fayette County, Bull Skin Township: J. H. Cornell 1 Charles W. Swink, dry, TD 3,802 ft.

North Central Texas

Stonewall County Gets Canyon Sand Discovery

WICHITA FALLS.—Skelly Oil Co. has completed its 1 Flowers in 54-D-H&TC, southeastern Stonewall County, as a Canyon sand discovery. Completion potential was 165 bbl. of 42°-gravity oil in 4 hours, flowing through ¾-in. opening on tubing from pay at 4,166-80 ft. Calculated daily potential was 993 bbl.

DeSoto Oil Co. 1 Guest, Canyon sand prospect south of Aspermont, which has swabbed some oil, prepared to treat with Hydrafrac.

In northeast Stonewall County, Sid Katz and R. H. Venable 1 Dozier, Strawn sand discovery, made a new gage of 133 bbl. of oil in 24 hours, flowing through 30/64-in. choke, from open hole at 4,822-34 ft. Operators were waiting on potential.

Cities Service Oil Co. and Sinclair Oil & Gas Co. have completed their 1-154 Swenson as the fifth Caddo limestone discovery on the Swenson Land & Cattle Co. ranch of northwest Throckmorton County. The 1-154 Swenson is 9 miles west of Throckmorton. Completion potential of 73 bbl. of 43°-gravity oil, flowing through 18/64-in. choke, from perforations at 4,973-83 ft.

In Wise County, Dwight M. Ross and Reno Oil Co. 1 J. W. Walker, wildcat 2½ miles east of Bridgeport, reported a flow of 65 bbl. of muddy oil in 24 hours, through 21/64-in. choke, from Bend conglomerate pay at 5,540-65 ft. Operators were to clean the well and acidize. The same operators were drilling below 3,700 ft. at their 1 Boulward, located ½ mile northeast of the 1 Walker.

Parker County has been scheduled for further exploration in the Springtown area by Kingwood Oil Co. New test is to be the 1 J. H. Peel, a 4,100-ft. Caddo project just north of town and 1½ miles northeast of the same company's 1 Luedtke, Caddo confirmation well to the Buzz field opener.

Kingwood's 1 H. W. Parks had cored from 3,575-3,661 ft., recovering 11 ft. of sand and shale, and 23 ft. of hard limestone with faint oil odor. Drill-stem test from 3,588-3,631 ft. recovered slightly gas-cut mud. Drilling continued below 3,635 ft.

Further development drilling in the new Knox City field of Knox County has been scheduled by Stanolind Oil & Gas Co. The 1 M. A. Verhalen is to be drilled as a southwest stepout to the 2 Clonte, confirmation well in the field.

Northwest of Bowie in Montague County, Jones, McFarland & O'Connell have staked location for 1 G. E. Blackman for a 6,100-ft. test. Location is southeast of An-Son Petroleum Corp.'s recent Bend conglomerate discovery.

A southeast extension for the Bodecker Viola lime field was in prospect at The Texas Co. 2-A Boedecker, Block 2,852. On drill-stem test from 6,708-35 ft., gas showed in 6 minutes and oil flowed in 25 minutes. Recovery in the pipe was 1,080 ft. of oil.

Southwest of Bluegrove in Clay County, Fred M. Manning, Inc., 1 H. C. Sanzenbacher completed for a pumping potential of 62 bbl. of 42°-gravity oil a day from the Caddo pay below 5,807 ft. The well had been drilled to the Ellenburger, which was logged at 6,411 ft. Top of the Mississippian was 6,128 ft., and a drill-stem test from 6,129-38 ft. recovered oil and gas-cut mud. A test in the Ellenburger from 6,412-21 ft. returned salty mud.

NORTH CENTRAL TEXAS (DISTRICTS 9 AND 7-B) SUCCESSFUL WILDCATS

Archer County: Jack Connell 1-A Conner, Tumlinson Sur., A-452, 5 mi. N Olney, TD 1,098 ft., pumped 32 bbl. oil.

Callahan County: United North & South Development Co. 1 Weldon Edwards, Sec. 14, BBB&C Sur., 9 mi. SW Clyde, TD 1,285 ft. in sand, pay 1,272 ft., flowed 302.5 bbl. 41°-gravity oil, ¼-in. choke, TP 75 psi.

Haskell County: Riley Maxwell 1 J. P. Hester, Sec. 214, M. W. Crittenden Sur., 7 mi. NE Weinert, TD 5,650 ft., elev. 1,496 ft., Caddo 5,304 ft., perf. 5,302-12 ft., pumped 133.9 bbl. 37°-gravity oil.

Jones County: Robinson-Puckett, Inc. 1 C. L. Hamilton, 15-1-T&NO, N of Anson, TD 2,468 ft., pay sand 2,460 ft., pumped 68 bbl. 39°-gravity oil.

Parker County: Kingwood Oil Co. 1 Chas. Luedtke, T&P Sur. 69, 2 mi. NW Springtown, TD 3,955 ft., elev. 970 ft., Caddo 3,554 ft., pay 3,829 ft., flowed 396 bbl. 40°-gravity oil, TP 100 psi.

Throckmorton County: Drilling & Exploration Co. 1 Richardson trust, Sec. 269, BBB&C Sur., 12 mi. N Throckmorton, TD 5,075 ft., PB 4,601 ft., elev. 1,353 ft., perf. Caddo 4,562-52 ft., flowed 214 bbl. 40°-gravity oil, ¼-in. choke, TP 160 psi., GOR 725 cu. ft.

NORTH CENTRAL TEXAS (DISTRICTS 9 AND 7-B) WILDCAT FAILURES

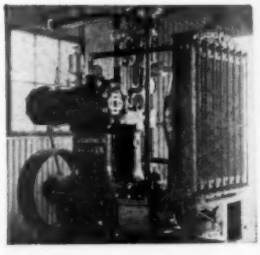
Archer County: Weldon Guest 1 J. J. Perkins, Blk. 134, ATNC Sur., 2 mi. NW Archer City, dry, TD 1,463 ft.

Baylor County: S. D. Johnson 1 Ballerstedt, Sec. 21, T&NO, 1½ mi. NW Maybelle, dry, TD 5,550 ft.

J. J. Lynn 1-F Claude Cowan, Blk. 23, H&TC, 18 mi. NE Seymour, dry, TD 5,710 ft., Canyon reef 3,210 ft.

Callahan County: Creslenn Oil Co. 1 Katherine Hill, Lot 5, Blk. 336, Victoria CSL, 3½ mi. SW Baird, dry, TD 1,725 ft.

Clay County: W. H. Hammon 1 G. D. Keith, Blk. 33, Cherokee CSL, 5 mi. SE Wichita Falls, dry, TD 5,809 ft. in lime.

SECONDARY MODERN RECOVERY
TECHNICAL CONSULTING PRODUCTION ENGINEERING SERVICE, INCLUDING CORE ANALYSIS
PRESSURE MAINTENANCE WITH GAS OR WATER
REPRESSURING WITH GAS OR WATER
Electric Driven Repressuring Gas Compressor

Montague County, Texas
SURVEYS
ESTIMATES
DESIGN
INSTALLATION
SUPERVISION
PETROLEUM ENGINEERS
CABLE & STINE
WICHITA FALLS, TEXAS

Coleman County: M. W. Freeman 1 Carl Buttry, 90-6-Coleman CSL, 14 mi. S Santa Anna, dry, TD 2,201 ft., elev. 1,430 ft., Caddo 1,677 ft., Marble Falls 1,763 ft., Barnett 2,097 ft., Ellenburger 2,180 ft.

Cooke County: Bridwell Oil Co. 1 J. T. Hoover, H. Dickson Sur., 3 mi. NW Muenster, dry, TD 3,450 ft.

Voth Bros. Drilling Co. 1 Dennison, L. P. Tipton Sur., 7 mi. NW Muenster, dry, TD 2,490 ft. in sand.

Eastland County: Gilchrist Drilling Co. 1 C. Michael, 62-4-H&TC, 2½ mi. ENE Cisco, dry, TD 3,427 ft.

Foard County: James F. Breuil 1 Johnson-Self, 8-A-SPRR, 8 mi. W Crowell, dry, TD 4,680 ft. in Canyon reef.

Haskell County: Geochemical Surveys 1 Exta Lightfoot, Sec. 132, E. Gilpin Sur., 1½ mi. E Weinert, dry, TD 5,401 ft.

T. D. Humphrey 1 W. F. Fonts, H. O. Campbell Sur., 4 mi. SE Haskell, dry, TD 3,691 ft., Palo Pinto 3,652 ft.

Jack County: Jack Grace Production Co. 1 Hollis Lewis, E. Wray Sur., 8½ mi. NE Jacksboro, dry, TD 5,600 ft.

G. E. Kadane & Sons 1 W. H. Peterson, J. B. Irvine Sur., 8 mi. NE Jermyn, dry, TD 3,526 ft.

Jones County: Geochemical Surveys 1 T. B. Harrell, Sec. 7, OAL Sur., 8 mi. NE Anson, dry, TD 2,450 ft., Frazier 2,130 ft., King sand 2,269 ft.

New Seven Falls Co. 1 A. B. French, 115-1-BBB&C, 7 mi. NE Hamlin, dry, TD 3,212 ft., Flippen 2,617 ft., Swastika 3,088 ft.

Parker County: Farris Oil Co. 1 M. Hightower, Sec. 361, T&P, 1 mi. N Milsap, dry, TD 3,509 ft.

Shackelford County: Fred M. Manning, Inc. 1-A Paul Pitzer, Sec. 395, TE&L, 8 mi. NE Albany, dry, TD 4,690 ft., Caddo 3,854 ft.

Stephens County: Baker & Taylor Drilling Co. 1 J. S. McKee, 39-7-T&P, 6 mi. E Moran, dry, TD 3,827 ft., elev. 1,420 ft., Lake sand 3,624 ft., Caddo 3,466 ft., Ranger 3,817 ft.

Stonewall County: John R. Black 1 W. F. Martin, 3-U-T&P, 15 mi. NW Hamlin, dry, TD 6,244 ft., elev. 1,790 ft., Swastika 3,860 ft., Ellenburger 6,178 ft.

Bridwell Oil Co. 1 J. M. Alexander, Sec. 6, Austin & Williams Sur., 6 mi. N Hamlin, dry, TD 3,733 ft., elev. 4,950 ft., Gunsight 3,539 ft., Swastika 3,631 ft.

Continental Oil Co. 1 C. C. Carothers, 139-F-H&TC, 11 mi. N Swenson, dry, TD 6,686 ft., elev. 1,686 ft., Mississippian 6,235 ft., Ellenburger 6,483 ft., Hickory 6,635 ft.

Taylor County: Paul P. Steed 1 Joel Copeland, Blk. 21, Wm. Bell Sur., 1½ mi. E Lawn, dry, TD 4,235 ft., Caddo 4,160 ft.

Throckmorton County: J. J. Lynn 1 G. R. Davis, Sec. 92, BBB&C Sur., 12 mi. SW Throckmorton, dry, TD 5,505 ft.

R. Clay Underwood 1 C. W. Redwine, Sec. 1,637, TE&L, 7 mi. SE Throckmorton, dry, TD 1,827 ft.

Wichita County: J. J. Lynn 1-B N. R. Temple, Blk. 9, Cowherd Bros. Sur., Palo Pinto CSL, 3 mi. S Iowa Park, dry, TD 4,960 ft.

Young County: C. B. Christie, Jr. 1 J. T. Sims, TE&L Sur., Blk. 629, near Jean townsite, dry, TD 3,204 ft.

Charles Christopher 1 Royce Goldston, Blk. 2,047, TE&L Sur., 3 mi. NE Graham, dry, TD 2,809 ft.

Frank Wood 1 B. W. King, Sec. 2, GB&N, 1½ mi. NE Loving, dry, TD 3,981 ft.

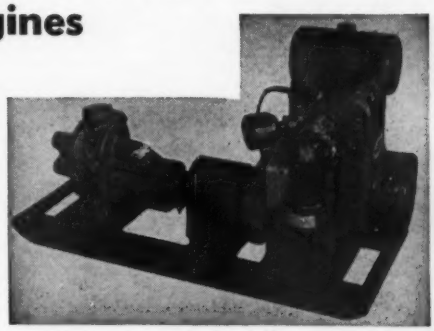
Ohio Fields

Hopewell Township, Perry County, Adds Three Wells

COLUMBUS.—Preston Oil Co. 5 John Beiter, Section 27, Hopewell Township, Perry County, filled up 1,000 ft. while drilling in. After shooting with 80 quarts, 40 bbl. of oil were swabbed in 24 hours.

OH, WHAT A BEAUTIFUL MORNING!

and every winter morning will be .... if you use WISCONSIN air-cooled Heavy Duty Engines



A COLD WEATHER OIL TREATING PUMPING UNIT

Pumping unit powered by Wisconsin air-cooled engine for circulating oil and tank bottoms. Slow speed of pump eliminates internal agitation and remulsification, it is self-priming, positive and has high suction lift. High tension rotary magneto with impulse starter insures easy starting of engine at lowest temperatures. Engine is free from those parts that cause winter operating troubles such as fan belts, radiator and water pump.

HARLEY SALES CO.

Oil Field Distributor

WICHITA TULSA HOUSTON

The 4 Beiter drilled through a gas pocket and filled up 300 ft. while drilling. The well will be shot. In the same township, L. L. Dittoe et al., 2 Clark Cochran, Section 21, filled up 400 ft. in 12 hours natural and made 30 bbl. of oil in 24 hours after an 80-quart shot.

Hunt & Wasson finished their 2 L. C. Fairall, Section 8, Jackson Township, Muskingum County, as an 89-bbl. oil producer. The Clinton, at 3,195-3,244 ft., had a good showing of oil natural but was shot with 170 quarts.

An addition to Richville pool in Stark County was brought in by Burtner, Morgan & Stephens at the 1 L. Leeper, Section 28, Perry Township. The Clinton, at 4,364-88 ft., gaged 400,000 cu. ft. natural and was shut in after shot.

New locations reported for the week increased to 12 with 1 wildcat, McManaway & Harmon 1 Sillaman, Section 25, Ripley Township, Huron County, which will be a Clinton test.

Permian Basin

Wolfcamp Pay Believed Added to Peck Field

MIDLAND.—Sinclair Oil & Gas Co. 7-C June Sanders, north outpost to the Peck multiple-pay field of Midland County, has tentatively established Wolfcamp production, and at last report was coring ahead in the Pennsylvanian.

A 4-hour test in the Wolfcamp from 9,805-37 ft. recovered 2,280 ft. of water blanket, 180 ft. of gas-cut mud, and 540 ft. of distillate. Open flowing bottom-hole pressure ranged from 1,000-1,250 psi. Top of the formation was 9,810 ft., on elevation of 2,882 ft.

Drilling ahead, it topped the Pennsylvanian around 9,967 ft., by samples, which checked a little high to wells on the north side of the field. A core from 10,240-74 ft. recovered shale and cherty limestone with no shows.

Southwest of Midland, Ralph Lowe 1 J. E. Hill, which had oil in the Dean sand and flowed oil from the Wolfcamp, was drilling below 12,635 ft. in Silurian lime and chert.

Cities Service Oil Co. and Continental Oil Co. 1-AH University, Spraberry and Ellenburger discovery in eastern Upton County, set casing at 10,950 ft., in the Ellenburger, and plugged-back total depth from 11,281 ft.

A 4-hour drill-stem test from 11,140-1,281 ft. found the water table. The well has flowed oil from sections at 7,128-85 and 10,710-10,805 ft.

Sunray Oil Corp. 1 Robert Brown, southeast Dawson County wildcat, has found oil in a Pennsylvanian reef limestone, 3½ miles north of the town of Sparenburg. The reef was entered at 9,502 ft., 6,604 ft. subsea, and a drill-stem test was run from 9,502-30 ft., total depth. Gas showed in 13 minutes and recovery was approximately 120 bbl. of 31°-gravity oil, some of which unloaded as pipe was pulled. Open flowing bottom-hole pressure was 1,651 psi. and 15-minute shut-in pressure reached 3,725 psi. Recovery on the test included 60 ft. of salt water on bottom, and operators were running electrical surveys.

Sunray's 1 A. A. Harris, proposed 10,500-ft. wildcat 11 miles southwest of Lamesa, Dawson County, was drilling ahead below 2,858 ft. in anhydrite and salt.

James H. Snowden et al 1-30 C. S. Dean, wildcat 12 miles northeast of Lamesa, was drilling at 6,291 ft. in Permian limestone. Snowden 1-32 Dean was in sand and shale believed to be Spraberry at 6,960 ft. Drill-stem test from 6,592-6,792 ft., open 5 hours, recovered 210 ft. of mud with no shows.

In the Wellman reef area of Terry County, Anderson Prichard 1 Mrs. Gladys Scales was about to become the sixth producer for the field, as well as a north extension. After perforating casing from 9,754-9,867 and 9,580-9,726 ft., the well kicked off and flowed oil and mud, with no water. On the last half of the second hour it gaged 40.5 bbl. of oil, cutting 1½ per cent mud, and was flowing to clean.

Additional Spraberry production was in prospect for Glasscock County at York & Harper, Inc., 1 K. S. Stone, located 1¼ miles northeast of H. S. Russell's Wrage-Hendrickson, Spraberry discovery.

Following Hydrafrac treatment from 6,870-7,135 ft., the 1 Boone flowed new oil at the rate of 12 bbl. an hour for 8 hours through 12/64-in. choke. It was then shut in overnight and when opened, kicked off and flowed 16.56 bbl. of oil in 20 minutes. The two wells are 3 miles east of production in Tex Harvey field of Midland County.

Spraberry exploration tests have been staked on the northwest edge of Benedum field by Blackwood & Nichols Co., Midland. Operations were to start at once on the 7,750-ft. tests, which are the 1 W. L. Pickens and 1 W. E. Gresham, both in Section 2, EL&RR Survey, 12 miles north of Rankin.

Runnels County reports included completion on two Gardner sand discoveries or extension wells. Two miles east of Cree-Sykes field, George B. Cree 1 Myrtle Allen completed flowing 264 bbl. of 41°-gravity oil a day through 16/64-in. choke, from perforations at 3,855-59 ft.

The other well was Richard King, Jr., and Henry Flinn 1 Noel Hale, 1 mile northwest of Talpa, which flowed 101.5 bbl. of 43°-gravity oil a day through ¼-in. choke, from open hole at 3,455-71 ft.

WEST TEXAS (DISTRICTS 8 AND 7-C) SUCCESSFUL WILDCAT

Crockett County: Oliver & Kotyza 1-A Todd, 35-WX-GC&SF, 20 mi. WNW Ozona, TD 1,342 ft., pay 1,326 ft., pumped 39.5 bbl. 28°-gravity oil, no water.

WEST TEXAS (DISTRICTS 8 AND 7-C) WILDCAT FAILURES

Coke County: Spartan Drilling Co. 1 L. E. Smith, Sec. GC&SF, 4½ miles NW Tennyson, dry, TD 6,382 ft., elev. 1,916 ft. Palo Pinto 4,802 ft., Capps 5,738 ft., Ellenburger 6,165 ft.

Union Oil Co. of California 1 City of

TALKING OF PIPES — NUMBER FOUR

BUAKA PIPE

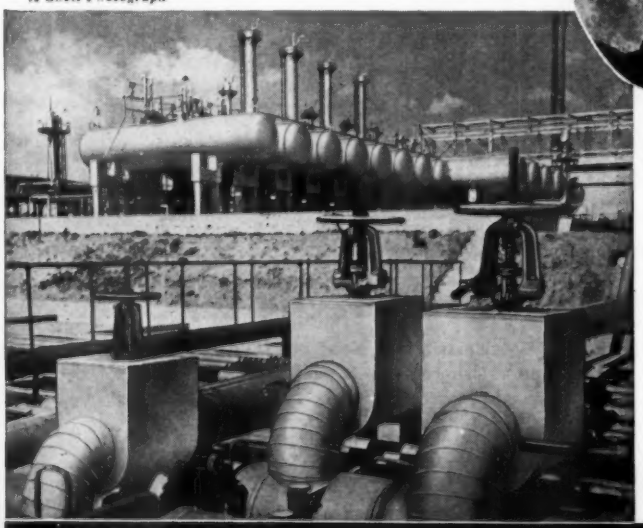
It is in the huge primeval region of African forests, stretching from the Gulf of Guinea right across the Congo Basin to the Great Lakes that the most elaborate and interesting varieties of wooden pipes are made. One such remarkable pipe, which is quite large, is illustrated here from the Buaka country.

INDUSTRIAL PIPING AND ITS HEAT INSULATION

Rather less unusual, but considerably more important, is piping for industrial purposes. Pipes conveying any form of heated fluid require insulating to ensure maximum efficiency. Have a survey made by a KENYON engineer; he will show you the advantages of the KENYON planned heat insulation service which is available anywhere in the world.

WILLIAM KENYON & SONS (AMERICA) LTD
136 LIBERTY STREET, NEW YORK, 6, N.Y.
WILLIAM KENYON & SONS LTD., DUKINFIELD, CHESHIRE, ENGLAND

'A Shell Photograph'



from "The Pipe Book" by Alfred Dunhill.

KENYON Planned HEAT INSULATION

KH104

Robert Lee, J. W. Hall Sur. 1, 1 mi. E Robert Lee, dry, TD 5,370 ft., elev. 1,884 ft., Noodle Creek 3,098 ft., Saddle Creek 3,400 ft., Flippen 3,540 ft., Swastika 3,890 ft., McCutcheon 3,990 ft., Palo Pinto 4,610 ft.

Runnels County: Southern Minerals Corp. 1 Ira Deakins, Sec. 115, ETRR, 1 mi. W Talpa, dry, TD 3,600 ft., elev. 1,926 ft., Serrat 2,127 ft., Palo Pinto 3,042 ft.

SOUTHEASTERN NEW MEXICO

HOBBS.—Another long stepout to production was in prospect for Bagley-Hightower field of northwest Lea County at Amerada Petroleum Co. 2 Caudle, 3-12s-33e, 1 mile northeast of nearest production.

Drill-stem test of 4 hours in the Devonian at 11,014-065 ft. returned the water blanket cut with oil and gas, 1,350 ft. of clean oil and 180 ft. of mud which was about half oil, according to reports. Maximum flowing pressure was 1,650 psi. Operators were coring ahead. The well previously indicated Pennsylvanian pay at 8,565-8,717 ft.

East of San Andres production in the Lovington field, Tide Water Associated Oil Co. 1-PD State, 32-16s-37e, had at least 86 ft. of Pennsylvanian pay, on the basis of drill-stem tests. A four-hour test from 10,696-10,725 ft. recovered 540 ft. of oil and 270 ft. of drilling mud. At 10,734-766 ft., recovery was the 2,000-ft. waterblanket heavily cut with oil and gas, 240 ft. of 38°-gravity oil and 10 ft. of drilling mud. The drill pipe unloaded intermittently while coming out of the hole. The last reported test from 10,690-811 ft. recovered 1,110 ft. of oil, cut about 5 per cent with oil and mud. Time on the test was not reported.

Tide Water's 4-S State, 2 mile south of nearest McKee sand (Simpson) production in Brunson field, and nearly 1 mile west of the same company's 3-S State Ellenburger discovery, found 53°-gravity oil in the McKee section.

Drill-stem test in the sand from 7,422-7,534 ft. had gas in 3 minutes, mud in 11 and oil in 12 minutes; then flowed into tanks for 1 hour, gaging 50 bbl. of oil. It was drilling ahead on a 7,800-ft. contract.

Northeast of Dublin field, Stanolind Oil & Gas Co. prepared to shoot and test in the Montoya section at its 2 Federal-Leonard, 12-26s-37e. The well had water in the Ellenburger in drilling to 11,235 ft., and was plugged back to 9,960 ft.

TEXAS PANHANDLE (DISTRICT 10) WILDCAT FAILURES

Childress County: Pure Oil Co. 1 Gourd Land & Cattle Co., 730-H-W&NW, 9 mi. NW Childress, dry, TD 4,890 ft., reef 4,700 ft.

E. D. Warner 1 Clark, 5-9-H&GN, 17 mi. N Childress, dry, TD 1,710 ft.

Eastern Texas

Deeper Pay Section Is Found in Sandusky Field

DALLAS.—A deeper pay section, probably Ellenburger according to observers, has been found about 2 miles southeast of nearest Oil Creek sand production in the Sandusky field of Grayson County.

The new well is Howell & Howell 1 J. C. Mulder, in the J. Barefoot Survey. A sandy dolomite was topped at 7,568 ft., and an oil-saturated sand was reported at 7,575-7,600 ft. It was first thought to be in the Oil Creek sand, which would have indicated a sharp dip of the structure to the east, but later reports identified the section as a lower zone in the Ordovician, below the Simpson.

A drill-stem test from 7,568-7,600 ft. had gas in 5 minutes and flowing oil in 15 minutes, with the testing tool still in the hole. Amount of oil flow and recovery were not disclosed. Following the test it was drilled ahead 20 ft., indicating additional pay section, and a second test was under way.

North of the town of Sandusky, Pure Oil Co. 1 Rich drilled a Pennsylvanian sand with oil show from 7,075-85 ft., but a 2-hour drill-stem test of that section recovered 5 ft. of mud with no shows.

In Houston County, W. B. Hinton and Ralph Spence 1 C. L. Walters, east of the Navarro Crossing field, recovered 750 ft. of 38°-gravity oil on a 90-minute drill-stem test in the sub-Clarksville from 5,755-62 ft., and was drilling ahead to the Woodbine. Bottom of the pipe had 390 ft. of salt water.

The Texas Co. 1 Mason, Limestone County wildcat 10 miles southeast of Groesbeck, ran a 30-minute drill-stem test from 6,685-6,745 ft. Recovery was water cushion and 990 ft. of gas-cut mud. Bottom-hole flowing pressure was 750 psi.

Oil Drilling Co. 4 Blount, deep test southeast of Alba field in Wood County, topped the Paluxy at 6,325 ft. and was drilling below 6,410 ft.

Stanolind Oil & Gas Co. 1 R. L. Peveto, wildcat southwest of Yantis, topped the Woodbine at 4,349 ft., Comanche at 5,120 ft. and was drilling below 5,959 ft.

EAST TEXAS (DISTRICTS 5 AND 6) WILDCAT FAILURES

Falls County: R. L. Corley and J. W. Modesett 1 Litteral, Geo. Allen Sur., 1½ mi. SW Lott, dry, TD 1,371 ft.

Grayson County: A. R. Dillard 1 E. J. C. Cannon, James Fox Sur., 3½ mi. SE Sherman, dry, TD 4,719 ft.

Harrison County: Renwar Oil Corp. 1 Millie Jackson, E. Carroll Sur., 7 mi. S Marshall, dry, TD 6,850 ft. in Travis Peak.

Truco DIAMOND BITS

Diamond equipment drills it faster – better

D&S CORE BARRELS

REAMERS

WHIPSTOCK BITS

WASHOVER SHOES

Drilling & Service, Inc.

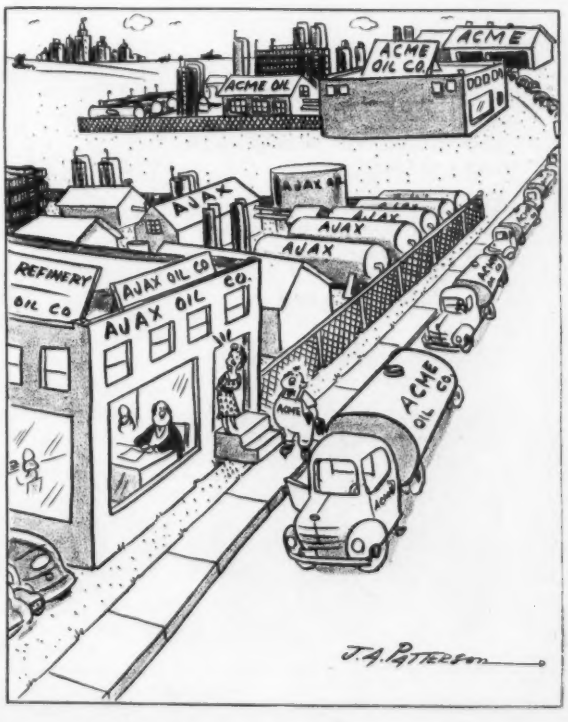
3031 Elm Street — Dallas 1, Texas

Riverside 6811 • TRemont 5559

Other Offices-Services: Tyler, Texas — 2-2742; Hobbs, N. M. — 822M; Odessa, Texas — 6774; Norman, Okla. — 4360; Abilene, Texas — 2-2790; Shreveport, La. — 7-8627; Casper, Wyo. — 3739

Distributors: Ralph Ruse, 15301 South Avalon Blvd., Compton, Calif. Telephone: (Los Angeles) Long Beach 9-2484; Allied Services, Inc., Mt. Pleasant, Michigan Telephone: 29-861

Foreign: D. T. O'Connor, 500 Fifth Avenue, New York, N. Y.; Petroleum Industry Consultants, C.A., Caracas, Venez.; Denton-Spencer Co., Ltd., Calgary, Alberta, Canada.



THE OIL AND GAS JOURNAL

"He says he's our next-door neighbor—he wants to borrow 50,000 bbl. of crude until Saturday!"

Canadian Fields

Barrhead Venture Finds Gas in Madison Lime

CALGARY.—Great Plains Development Co. of Canada, Ltd., has completed its Barrhead well in central Alberta as a Madison limestone gas well with potential of 6,249,000 cu. ft. per day. The success, ½ mile east of O'Mear-Barrhead 1 which found some 23°-gravity crude oil in the Madison limestone, has now been completed and shut in. Further tests and workover operations may be considered in the spring. It is unlikely that consideration of further drilling will be given before that time. Great Plains-O'Mear-Barrhead 4-14 is located in LSD 4, 14-58-5w5, 17 miles southwest of Barrhead town and 55 miles northwest of Edmonton. It was completed in top of the Madison at 3,965 ft., cased to 3,970 ft., and jet-perforated and acidized in the 6-ft. section below the casing. Natural gas, but no oil or water, was the result.

New British Dominion Oil Co., Ltd., & Associates found some oil encouragement in the top of D2 Devonian zone at their venture on the west side of Leduc oil field. The well, British Dominion-Leduc 5-8, in LSD 5,8-50-26w4, ran drill-stem test at bottom 5,238 ft., about 40 ft. in that zone. During the 1-hour test the well gave a small gas blow plus a recovery of 230 ft. of oil-cut mud. Crew is now reaming at 5,238 ft. preliminary to continuing to core. The well showed more oil encouragement than did Bay Pete-Manchek 1, D2 producer located ¼ mile to the east, in a comparative section. The Manchek well got its commercial oil about 75 ft. into the D2. British Dominion's well should reach that section shortly.

D2 Devonian oil was found at a well in the southern extension area of Leduc, about ¾ mile from previous production. The well is being drilled by Trans Empire Oils, Ltd., on an 80-acre tract that is held by Phillips Oil Co., Ltd., Canadian independent. The venture, Trans-Empire-Phillips 1, in LSD 10, 31-49-27w4, ran D2 drill-stem test from 5,420-32 ft. and received a natural gas flow to the surface in 1½ minutes, plus 1-hour pipe recovery of 2,020 ft. of clean crude oil. A second D2 test, from 5,430-42 ft., gave a natural gas flow to the surface in 2 minutes, with flow rate of 100,000 cu. ft. daily, and a 1-hour pipe recovery of 3,510 ft. of clean oil. Crew cored on to 5,462 ft. and is now testing that last 20-ft. interval.

Socony-Vacuum Exploration Co. has placed its second Duhamel-Camrose oil well on steady production, and rated a post-acid potential of almost 2,000 bbl. daily at that well, which is located about 2 miles north of the company's dual zone Devonian oil discovery. The new producer, Socony-Duhamel 29-14, in LSD 14, 29-45-21w4, completed in D3 Devonian at 4,870 ft., and crew perforated at 4,730-4,820 ft. with 532 shots. Prior to acidization, an initial production test was run through ½-in. choke and the well rated oil at 1,605 bbl. daily. After a 2,000-gal. acid treatment, it showed an initial recovery of 1,944 bbl. daily through ½-in. choke. Gravity of the oil is 35.5°. The well, like the oil discovery to its south, found oil in both D2 and D3 zones. The D2 was around 148 ft. thick, while the D3 was about 146 ft. in thickness.

CANADIAN SUCCESSFUL WILDCATS

Socony-Duhamel 29-14, LSD 14, 29-45-21w4, TD 4,870 ft., 1,944 bbl. oil.

Great Plains-Barrhead 4-14, LSD 4, 14-58-5w5 TD 3,976 ft., 6,249,000 cu. ft. natural gas.

CANADIAN WILDCAT FAILURES

C.D.A.S.-Trefoil 1, LSD 3, 16-25-15w4, TD 4,980 ft.

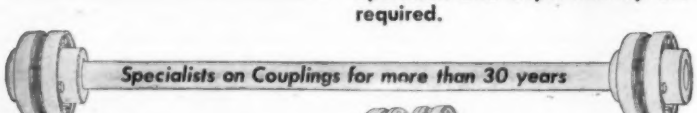
Spike Redwater-Feniak 1, LSD 15, 23-56-19w4, TD 4,740 ft.

THOMAS Flexible ALL METAL COUPLINGS

FOR POWER TRANSMISSION • REQUIRE NO MAINTENANCE

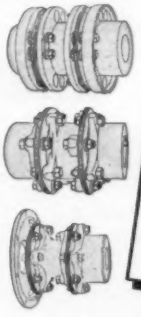
REFINERS! PIPE LINE MEN!
DRILLING ENGINEERS!
LABORATORY TECHNICIANS!

All can use Thomas Couplings to their advantage on Pumps, Compressors, Cooling Towers, Rigs or any tough job where continuous operation and dependability are required.

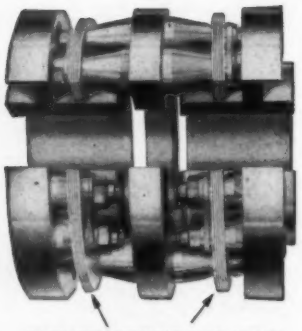


Patented Flexible Disc Rings of special steel transmit the power and provide for misalignment and end float.

Thomas Couplings have a wide range of speeds, horsepower and shaft sizes:
½ to 40,000 HP
1 to 30,000 RPM



BACKLASH FRICTION WEAR and CROSS-PULL are eliminated
Lubrication is not required!



PATENTED FLEXIBLE DISC RINGS

THE THOMAS PRINCIPLE GUARANTEES PERFECT BALANCE UNDER ALL CONDITIONS OF MISALIGNMENT.

• • •

NO MAINTENANCE PROBLEMS.

• • •

ALL PARTS ARE SOLIDLY BOLTED TOGETHER.

Write for the latest reprint of our Engineering Catalog.

THOMAS FLEXIBLE COUPLING CO.
WARREN, PENNSYLVANIA

Louisiana-Arkansas

Lincoln Parish Wildcat Flows Gas-Distillate

SHREVEPORT.—A wildcat between Hico-Knowles and Lisbon fields of Lincoln Parish flowed gas-distillate on a test of the Vaughn zone. W. C. Feazel and Southwest Gas Producing Co.'s A-1 Burgess unit, Section 17-20n-4w, flowed 40 bbl. of 58°-gravity distillate and 4,960,000 cu. ft. of gas per day from perforations at 8,684-95 ft.

A hearing has been scheduled on Midstates Oil Corp.'s application to start a water-flood program for Lisbon field. Covering about 10,000 acres in Claiborne and Lincoln parishes, the project is called the largest of its kind, and it is estimated that it will take 10 years to complete.

A wildcat in the new Alabama Bend area has been staked by H. E. Davenport et al. The test, 1 J. W. McClendon, Section 1-14n-11w, Red River Parish, will go to the Paluxy.

NORTH LOUISIANA WILDCAT FAILURES

Caddo Parish: Morris Coats 1 L. K. Lee, SE NW 26-15n-12w, dry, TD 2,905 ft.

DeSoto Parish: Mid-Century Oil & Gas Co. 1 Applen Simpson, 21-13n-14w, dry, TD 3,210 ft.

ARKANSAS WILDCAT FAILURE

Columbia County: Lion Oil Co. 1 Whaley, SE SE 4-19s-21w, elev. 279 ft., dry, TD 10,015 ft., James 5,125 ft., Travis Peak 5,702 ft., Cotton Valley 7,324 ft., Buckner 9,819 ft., Smackover 9,892 ft., Reynolds 9,902 ft.

Illinois-Ind.-Ky.

Three Illinois Wildcats Show for Oil Producers

TWO wildcats located only a half mile apart in the area east of Gossett and about 3 miles northwest of Omaha, in White County, Illinois, are showing for oil producers, one in Cypress sand and the other in the Palestine sand. Both were drilled by Howard D. Atha. The area, southwest of the Roland pool, is one where several disappointing wildcats have been drilled.

The prospective Cypress well is 1 Delap, SE SW NW 8-7s-8e. It logged saturation at 2,625-31 ft. with bottom of the hole still in the pay. A 60-minute drill-stem test taking in the section below 2,618 ft. flowed gas within 36 minutes and gave a recovery of 500 ft. of clean oil and 100 ft. of oil-cut mud when pipe was broken down. Casing has been cemented on top the pay at 2,721 ft.

A half mile south of the Delap well, 1 Johnson, SW SE SW 8-7s-8e, had promising saturation in Palestine sand at 2,031-37 ft. Bottom of this well also still was in the sand. Approximately 30 ft. of clean oil and 130 ft. of oil-cut mud was recovered in a drill-stem test, in which the tester was open only 3 minutes. Casing has been run to 2,024 ft.

Edwards County, Illinois, also has a prospective new pool where Barron Kidd is preparing to test good saturation in O'Hara lime at 2,987-92 ft. in his 1 Addison Cowling, NW SE SE 4-1s-14w. A 53-minute drill-stem test got gas within 5 minutes and at the end had started to flow clean oil. Total depth is 3,113 ft. with casing cemented on top the O'Hara. The area is northeast of Bone Gap, 4 miles southeast of West Salem and about 2 miles east of the Bone Gap pool.

W. A. Schuller apparently has uncovered a new pay zone in the comparatively new Mount Vernon extension area, 2 miles northwest of Mount Vernon, Posey County, Indiana. His 1 Mattingly, SE NW NW 31-6s-13w, got 1,500 ft. of clean oil and 60 ft. of oil-cut mud in a drill-stem test in the Aux Vases. Saturation was logged in a sandy lime interval at 2,707-20 ft., on which casing has been run to 2,705 ft. Bottom of the hole is 2,725 ft.

George Engle 1 Powell, a semiwildcat located in the SW SW NW 18-N-24, west of Sebree, Webster County, pumped 30 bbl. of oil per day at completion in Tar Springs sand at 1,805-20 ft. Hole was plugged back to this sand from a total depth of 2,597 ft.

ILLINOIS SUCCESSFUL WILDCATS

Wayne County: John M. Zanetis 1 Daubs, NE NE NE 31-1n-9e, IP 540 bbl., McClosky 3,295-3,306 ft., TD 3,306 ft.

Floyd & Henson 1-A Bunting, SW NE NW 35-1s-9e, IP 192 bbl., O'Hara 2,196-3,208 ft., TD 3,276 ft.

ILLINOIS WILDCAT FAILURES

Edwards County: Nation Oil Co. 1 Hortin, SE NE SE 28-2s-10e, dry, TD 3,298 ft.

Wayne County: R. W. Harper 1 Coplea, NW NW SE 27-2n-9e, dry, TD 3,306 ft.

INDIANA SUCCESSFUL WILDCAT

Daviess County: Englebert Michel 2 Woodruff, NE NW SW 34-5n-6w, IP 100 bbl., McClosky 748-61 ft., TD 765 ft. (opens new pay zone Elnora pool).

INDIANA WILDCAT FAILURES

Daviess County: Ryan Oil Co. 1 Keith, SW NW SW 7-3n-6w, dry, TD 1,391 ft.

Gibson County: Howard Atha 1 Sullivan, SW NE SE NW MD 50-1n-10w, dry, TD 1,876 ft.

Slagter Producing Co. 1 Straub, SE SE NW 32-3s-11w, dry, TD 2,674 ft.

Vanderburgh County: George & Wrather 1 Schenk-Reherman, NE NW NE 25-5s-11w, dry, TD 2,455 ft.

WESTERN KENTUCKY WILDCAT FAILURES

Henderson County: Carter Oil Co. 1 Duncan, SE SW SE NE 2-P-21, dry, TD 2,804 ft.

H. L. Wirick 1 Rash, SW NW SW NE 21-Q-24, dry, TD 2,490 ft.

Union County: Carter Oil Co. 2 Moore, NW SW NE NE 21-P-20, dry, TD 2,178 ft.

Joe Reznik 1 Moore, W½ SW SE NE 2-O-18, dry, TD 3,096 ft.

Webster County: W. Worthy 1 Carnall, SW SE SW SW 8-M-22, dry, TD 3,284 ft.

EASTERN KENTUCKY

ASHLAND.—In Big Sandy gas field, United Fuel Gas Co. has recently completed the following wells: 2 M. B. Stratton, Pike County sector, 1,485,000 cu. ft. gas daily from Maxon sand at a total depth of 2,195 ft.; 6629 W. M. Millard, Pike County sector, 358,000 cu. ft. gas daily from Devonian black shale at total depth of 3,488 ft.; 5381 Kentland Coal & Coke Co., Pike County sector, 103,000 cu. ft. gas daily from Devonian black shale at total depth of 4,537 ft.

In Morgan County, 8-Q-75, about 3 miles southwest of the county seat at West Liberty, Bert Kiser et al are drilling at 1,375 ft. in Corniferous lime topped at 1,360 ft. No shows have been reported to date in this wildcat test.

EASTERN KENTUCKY WILDCAT FAILURES

Harlan County: Honaker 1 Bantam, SW SW NE 23-1n-19w, dry, TD 3,600 ft.

Wheeler County: Cedar Valley 1 Plugge, NE NE SE 20-22n-11w, dry, TD 3,267 ft.

PERMANENTLY FLEXIBLE
DECALS

A decal that will not become brittle or lose its transfer or adhering qualities. We are specializing in problems of the oil and gas industry. Your inquiries and problems will receive immediate attention.

Send for a sample decal.

Perma-Flex Decal Co.

537 Delaware Kansas City, Mo.

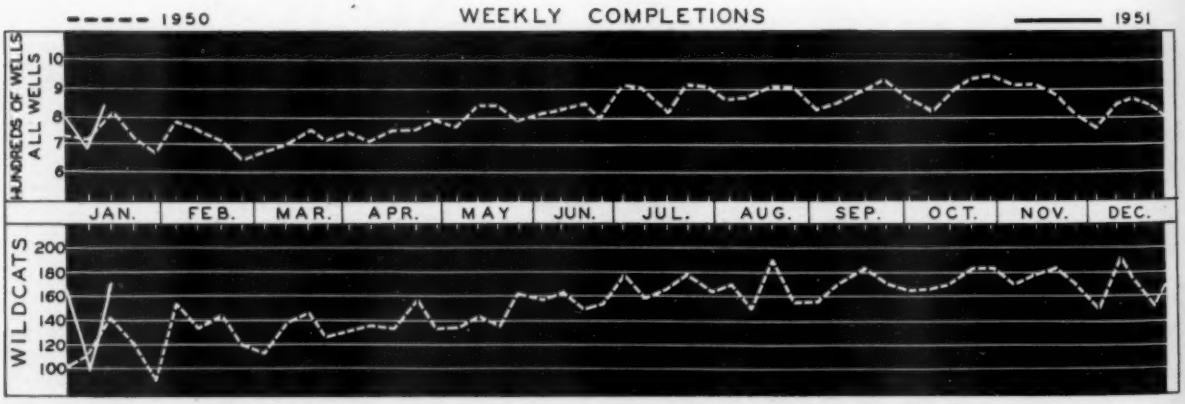
CURRENT STATISTICS

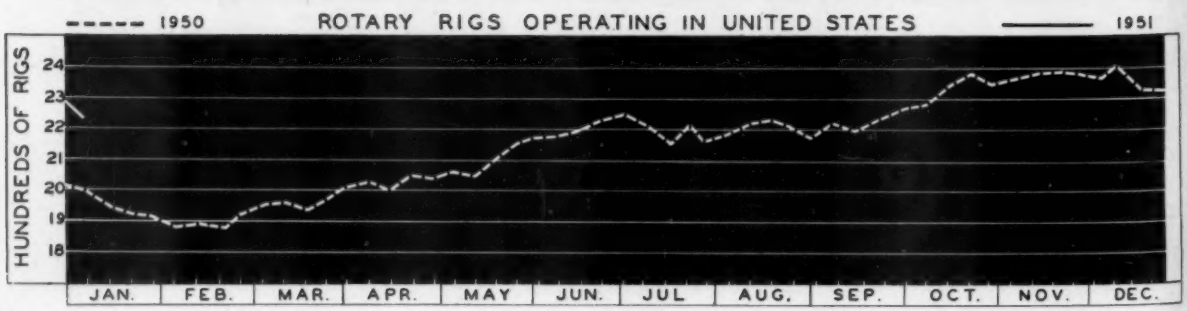
EXPLORATION

WEEKLY WELL COMPLETIONS . . . . . WEEK ENDED JANUARY 13, 1951

	Total of all wells					Jan. 13		Wildcat completions and discoveries					Cumulative total, 1951				
	Comp.	Oil	Gas	Dry	Footage	1951	1950	Oil	Dist.	Gas	Dry	Total	Oil	Dist.	Gas	Dry	Total
New York	8	5	0	*3	11,560	17	30	0	0	0	0	0	0	0	0	0	0
Pennsylvania	17	5	4	†8	31,464	35	46	0	0	0	1	1	0	0	0	1	1
West Virginia	17	3	13	1	43,818	27	20	0	0	0	0	0	0	0	0	1	1
Ohio	19	6	5	8	38,050	32	39	0	0	0	0	0	0	0	0	2	2
Indiana	28	11	1	16	48,393	64	56	1	0	0	4	5	1	0	0	8	9
Kentucky	31	11	6	14	67,477	53	40	0	0	0	5	5	1	0	0	9	10
Illinois	50	26	0	24	130,494	104	113	2	0	0	2	4	2	0	0	13	15
Michigan	9	0	0	9	20,374	23	30	0	0	0	5	5	0	0	0	10	10
Kansas	65	21	9	35	203,398	121	103	4	0	1	21	26	7	0	1	27	35
Nebraska	4	0	2	2	17,157	5	1	0	0	1	2	3	0	0	1	3	4
Oklahoma	159	91	8	‡60	619,332	219	172	12	0	2	21	35	13	0	2	30	45
Texas	314	207	21	86	1,374,807	582	576	10	0	3	53	66	15	0	4	66	85
North Central (Dist. 7-B & 9)	102	54	0	48	317,596	180	157	6	0	0	30	36	6	0	0	30	36
West (Dist. 7-C & 8)	69	64	0	5	330,778	141	131	1	0	0	3	4	1	0	0	3	4
Panhandle (Dist. 10)	21	14	3	4	64,751	29	74	0	0	0	2	2	0	0	0	2	2
Eastern (Dist. 5, 6, & 6-P)	13	8	1	4	69,504	29	49	0	0	0	3	3	0	0	0	3	3
Gulf Coast (Dist. 2 & 3)	63	33	17	13	418,293	103	90	3	0	3	8	14	7	0	3	15	25
Southwest (Dist. 1 & 4)	46	34	0	12	173,879	95	75	0	0	0	7	7	1	0	1	13	15
Louisiana	58	36	4	18	392,410	99	117	0	0	0	5	5	2	0	0	14	16
Northern	26	15	2	9	100,659	53	80	0	0	0	2	2	0	0	0	8	8
Southern	32	21	2	9	291,781	46	37	0	0	0	3	3	2	0	0	6	8
Arkansas	6	2	0	4	31,742	19	19	0	0	0	2	2	0	0	0	5	5
Mississippi	8	4	0	4	49,532	9	14	1	0	0	1	2	1	0	0	2	3
Southeastern States	2	1	0	1	6,454	4	3	0	0	0	0	0	0	0	0	1	1
Montana	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
Wyoming	12	7	0	5	66,865	24	39	0	0	0	3	3	0	0	0	7	7
Colorado-Utah	3	1	0	2	16,991	7	12	0	0	0	1	1	0	0	0	2	2
New Mexico	8	3	4	1	16,893	15	22	0	0	1	0	1	0	0	2	0	2
California	30	20	0	§10	129,251	62	64	1	0	0	7	8	1	0	0	14	15
Miscellaneous	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
Total United States	848	460	77	311	3,321,498	1,525	1,531	31	0	8	133	172	43	0	10	216	269
Total previous week	677	397	38	242	2,618,749	....	....	12	0	2	83	97	12	0	2	83	97
Total January 13, 1950	817	497	45	275	3,281,585	....	....	20	2	2	118	142	41	2	10	200	253

Service wells included: *3, †4, ‡2, §1.





DAILY AVERAGE PRODUCTION FOR WEEK

	Jan. 13 crude oil	B. of M. Jan. demand	Jan. 6 crude oil
Alabama	2,650	2,400	2,550
Arkansas	82,050	88,000	81,800
California	963,700	960,000	964,500
Colorado	75,600	68,000	77,600
Eastern	59,100	67,000	62,000
Florida	1,500	1,600	1,475
Illinois	163,200	176,000	169,100
Indiana	28,800	31,000	31,300
Kansas	289,850	301,000	309,300
Kentucky	30,200	31,000	31,100
Louisiana	596,175	612,000	595,825
North Louisiana	116,900	.....	116,550
South Louisiana	479,275	.....	479,275
Michigan	44,200	47,000	42,100
Mississippi	101,100	114,000	100,850
Montana	21,900	23,000	22,000
Nebraska	8,100	6,000	8,000
New Mexico	134,250	138,000	134,250
Oklahoma	493,550	470,000	491,900
Texas	2,400,375	2,395,000	2,400,375
Dist. 1 (Southwest)	31,500	.....	31,500
Dist. 2 (Southwest)	141,425	.....	141,425
Dist. 4 (Southwest)	221,650	.....	221,650
Dist. 3 (Gulf Coast)	425,400	.....	425,400
Dist. 5 (Eastern)	42,625	.....	42,625
Dist. 6 (Eastern)	94,375	.....	94,375
East Texas field	272,000	.....	272,000
Dist. 7-C West	72,925	.....	72,925
Dist. 8 (West)	784,625	.....	784,625
Dist. 7-B (W Central)	73,425	.....	73,425
Dist. 9 (N. Central)	150,425	.....	150,425
Dist. 10 (Panhandle)	90,000	.....	90,000
Utah	3,300	4,000	3,800
Wyoming	180,700	180,000	183,100
Total United States	*5,680,300	5,715,000	5,712,925
Change from prev. week, down	32,625		
Canada	106,445	.....	.....

Total U. S. production January 1-January 13 .. †81,061,400 bbl.
Same period last year (crude plus cond.) ..... 64,435,820 bbl.

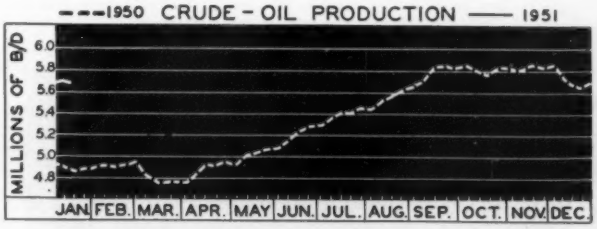
*Not including 103,475 bbl. condensate. †Including 1,308,825 bbl condensate.

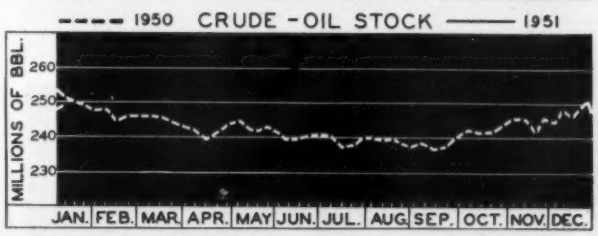
CRUDE-OIL STOCKS BY STATES OF ORIGIN*

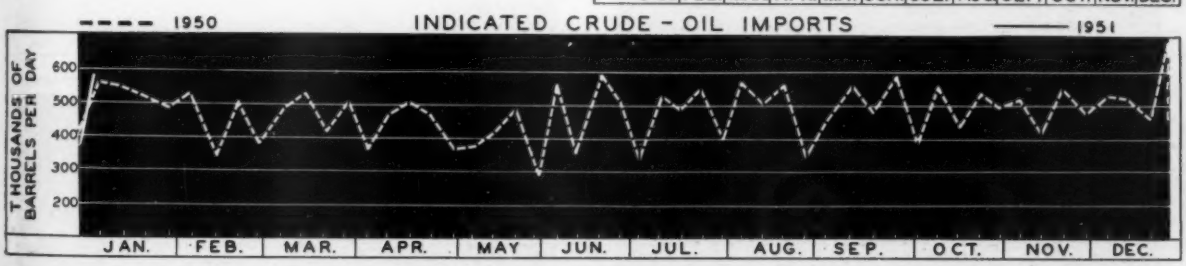
(Thousands of barrels)

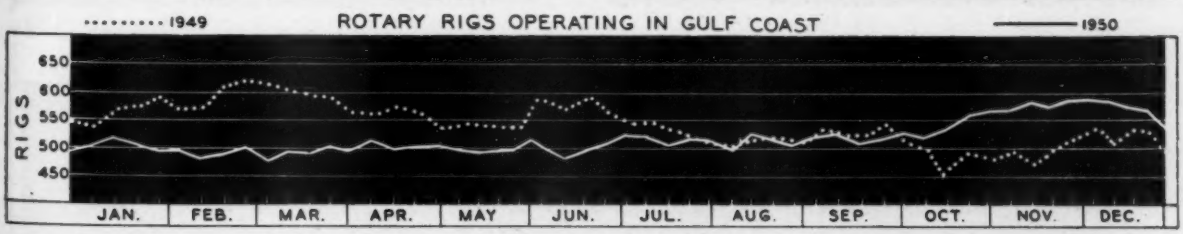
	Jan. 6, 1951	Dec. 30, 1950	Jan. 7, 1950
Pennsylvania Grade	2,090	2,079	2,745
Other Appalachian	1,230	1,299	1,810
Illinois, Indiana, Michigan	10,291	9,819	11,610
Arkansas	2,410	2,608	3,110
Louisiana	13,903	13,909	13,993
North	2,670	2,638	3,558
Gulf	11,233	11,271	10,435
Mississippi	2,779	2,324	2,053
New Mexico	7,043	6,985	7,397
Oklahoma and Kansas	38,564	39,169	37,999
Texas	118,649	118,293	112,419
East Texas	14,510	14,845	15,138
West Texas	46,952	46,849	41,124
Texas Gulf	28,394	27,932	29,450
Other Texas	28,793	28,667	26,707
Rocky Mountain	11,740	11,475	13,286
California	31,408	31,155	37,977
Foreign	7,986	7,598	6,825
Total	248,123	246,713	251,224

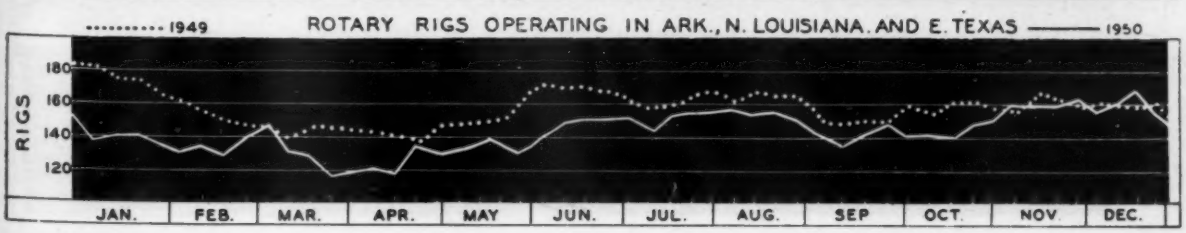
*Bureau of Mines.









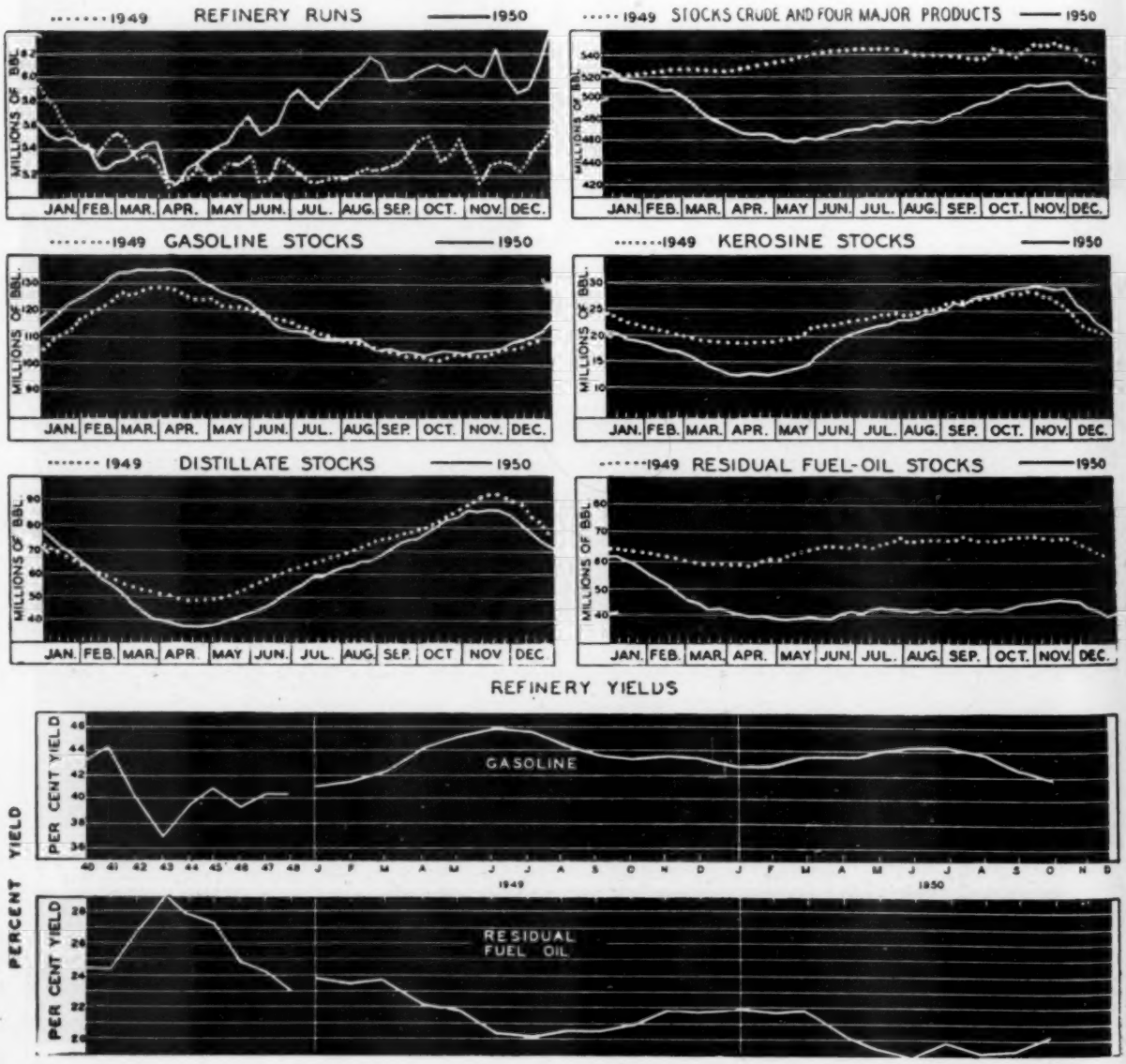

1949 ROTARY RIGS OPERATING IN ARK., N. LOUISIANA AND E. TEXAS 1950
RIGS
180
160
140
120
JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP OCT. NOV DEC.

A.P.I. REFINERY REPORT, JANUARY 6

(Thousands of barrels)

District—	Daily avg. crude runs	Daily average production: Gasoline*	Kerosine	Distillate	Residual	Stocks at refineries, bulk terminals, in transit and in pipe lines: Gasoline†	Kerosine	Distillate	Residual	Bureau of Mines, January 1950: Daily avg. crude runs	Daily average production: Gasoline*	Kerosine	Distillate	Residual
East Coast	946	393.9	39.7	244.8	257.9	24,295	7,684	20,215	9,683	853	349.1	40.3	184.1	209.3
Appalachian:														
District 1	96	39.6	4.4	15.7	13.2	2,931	362	652	356	94	40.8	7.4	13.8	12.2
District 2	67	32.3	5.0	5.7	18.7	1,184	140	112	135	69	32.1	5.1	8.6	16.1
Ind., Ill., Ky.	1,158	595.6	62.6	204.0	175.4	25,208	4,346	9,446	3,448	1,001	508.4	72.5	172.1	176.4
Okla., Kans., Mo.	544	292.4	18.0	134.3	65.0	12,185	933	7,840	1,261	448	253.7	20.1	88.8	60.0
Inland Texas	211	156.7	12.1	24.7	40.0	3,794	476	1,051	661	194	133.2	13.1	25.2	37.5
Texas Gulf Coast	1,598	694.6	148.4	403.1	289.3	18,857	2,852	11,713	5,316	1,270	578.5	111.9	273.8	242.1
La. Gulf Coast	493	245.6	63.9	119.0	70.7	8,163	1,324	3,690	2,191	447	207.7	63.3	97.5	51.7
N. La. and Ark.	78	33.6	8.9	15.3	8.4	2,589	347	1,012	127	68	28.7	7.2	11.8	13.6
Rocky Mountain:														
New Mexico	14	7.6	.4	2.9	3.4	108	25	59	32	13	7.6	.5	2.0	3.3
Other Rocky Mtn.	211	95.0	5.9	40.6	43.4	3,694	278	1,661	775	174	83.8	6.6	31.8	40.8
California	931	420.2	10.3	151.0	364.9	16,300	743	10,747	17,929	852	351.7	11.4	138.5	346.5
January 6, 1951	6,347	3,007.1	379.6	1,361.1	1,350.3	119,308	19,510	68,198	41,914	5,483	2,575.3	359.4	1,048.0	1,209.4
December 30, 1950	6,388	2,930.3	384.7	1,432.0	1,347.7	116,872	20,335	71,318	41,062	.....	.....	.....	.....	.....
January 7, 1950	5,524	2,672.9	383.9	1,049.7	1,190.9	116,774	20,215	75,338	61,715	.....	.....	.....	.....	.....

*At refineries including natural blended. †Finished and unfinished.



CRUDE PRICES
GRAVITY SCHEDULE

	Signal Hill, Calif.‡	Oklahoma, Kansas	Gulf Coast Tex.*	West Tex.†
18-18.9	$1.93	....	....	....
19-19.9	1.98	....	....	....
20-20.9	2.03	$2.25	....	$2.12
21-21.9	2.07	2.27	....	2.14
22-22.9	2.12	2.29	....	2.16
23-23.9	2.18	2.31	....	2.18
24-24.9	2.24	2.33	$2.56	2.20
25-25.9	2.30	2.35	2.58	2.22
26-26.9	2.36	2.37	2.60	2.24
27-27.9	2.41	2.39	2.62	2.26
28-28.9	2.46	2.41	2.64	2.28
29-29.9	2.52	2.43	2.66	2.30
30-30.9	2.57	2.45	2.68	2.32
31-31.9	2.62	2.47	2.70	2.34
32-32.9	2.68	2.49	2.72	2.36
33-33.9	....	2.51	2.74	2.38
34-34.9	....	2.53	2.76	2.40
35-35.9	....	2.55	2.78	2.42
36-36.9	....	2.57	2.80	2.44
37-37.9	....	2.59	2.82	2.46
38-38.9	....	2.61	2.84	2.48
39-39.9	....	2.63	2.86	2.50
40 and above	....	2.65	2.88	2.52

*For crude from Daboval, El Campo, and Sand Point.

†Includes Lea County, New Mexico. Last general price change represented a 50-cent increase becoming effective December 6, 1947.

‡Standard Oil Co. of California.

FLAT CRUDE PRICES

Representative posted schedules per barrel.

East Texas†	$2.65
Kettleman Hills, California*	2.80
Beauregard Parish	2.60
Illinois Basin	2.77
Pecos County, Texas (Yates)	2.35
Bradford, Pennsylvania	4.25
Eastern Ill. and Western Ind.†	2.77
Tomball, Texas Gulf Coast	2.83

*37°-37.9°. †35° and above.

THE mad scramble for heavy fuel oil that characterized Mid-Continent marketing throughout most of December began to settle to a steady high-level demand near the end of the year. Residual fuel, which had been available at $1.65 a barrel early in November, started climbing. Some sales were reported at $2 by early December.

A general shortage of dirty cars at a time when natural-gas deliveries to some utility plants and other industrial users were reduced started a spiral of consumer bidding for material and transportation. There were reports of offers of up to $2.50 a barrel, Group 3. Buying hysteria seems to have passed, but the high demand continues. Residual stocks actually increased in the Mid-Continent area for the week ended January 6, but this was probably due to a lack of cars rather than any drop in demand. Since there is no big backlog of residual stocks in the Mid-Continent, heavy shipments in January could produce a material shortage by next month.

Clean cars for the movement of distillate fuels are still tight. Some No. 2 fuel is available at prices near the low of the Group 3 market if the buyer can furnish cars. If seller has the cars, he will have little trouble moving No. 2 at the high.

Tighter residual markets are reported for the East Coast. Supplies on the New York Harbor market are closely held with bids of 25 cents over the low reported. Residual prices are at about parity with coal. Fuel-oil consumption by electric utility plants in November was about 15 per cent below the same month in 1949, but this was probably due to the fact that residual had a slight price advantage over coal throughout most of 1949. Any increase in coal prices later this year will result in higher prices for residual fuel to maintain parity.

REPRESENTATIVE QUOTATIONS

Representative spot-market quotation of leading suppliers as of January 15, 1951. Figures are f.o.b. plant for tank-car shipments in cents per gallon, except for residual fuel oil which shows the price per barrel and wax, in cents per pound.

GASOLINE, KEROSINE, AND FUEL OILS

	Mid-Continent Group 3	New York Harbor (barge)	Texas Gulf Coast
Regular gasoline, 80-82 octane	10½-10½	12-12.75	10¾-11
Premium gasoline, 86-88 octane	11⅛-11½	13.5-13.75	11½-12
42-44 w.w. kerosine	9¼-9⅜	10-10.1	8¾-9
No. 2 straw fuel oil	8⅜-8⅝	9-9.25	7¾-8
No. 6 residual	$1.80-1.90	$2.25-2.30	$1.75-1.90

NATURAL GASOLINE

	Group 3	North Texas	N. La
Grade 26-70	6⅞	6⅜	6⅜
Grade 18-55	8.25	7.75	8.0

LUBRICATING OILS

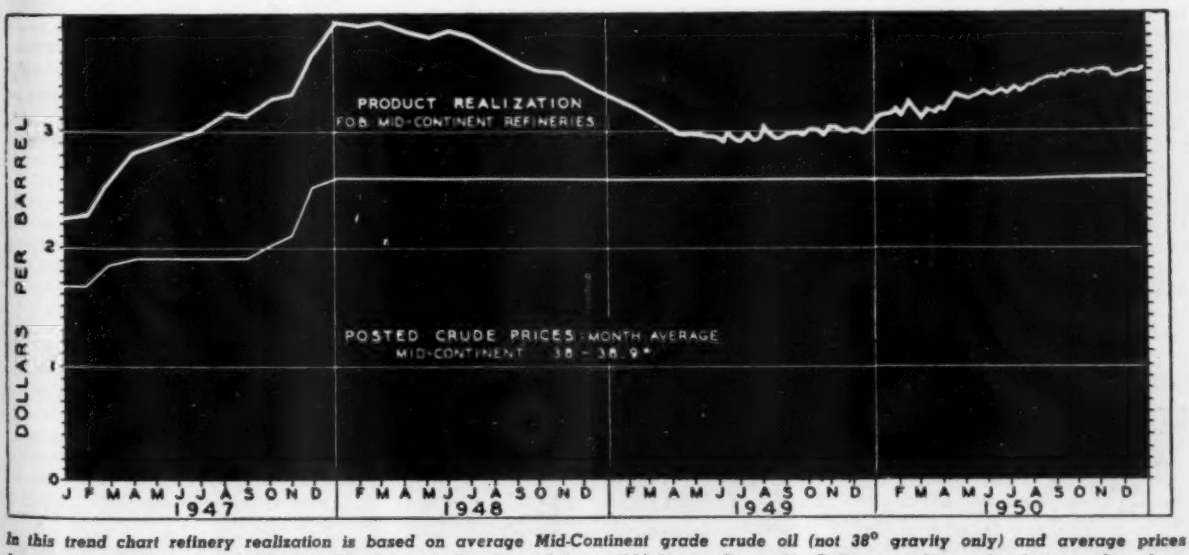
South Texas	
200 vis., No. 2-3 neutral	13-13.5
750 vis., No. 3-4 neutral	16
2,000 No. 5-6 neutral	18-19

Mid-Continent	
150-160 vis., D bright stock, 0-10 pp.	29-30
200 vis., No. 3 neutral, 0-10 pp.	17.5-18.5

Western Pennsylvania	
145-155 vis., 10 p.t. bright stock	32.5
180 vis., 0 p.t. neutral	31.5

WAX

Mid-Continent	
132-134 A.M.P.	6.0



In this trend chart refinery realization is based on average Mid-Continent grade crude oil (not 38° gravity only) and average prices for refinery products as published in The Oil and Gas Journal basis Oklahoma (Group 3). Refinery yields confined to gasoline, kerosine, distillate, and fuel oil. Realization averaged $3.54 for week ended January 6, $3.53 for previous week, and $3.19 for January 1950.

EQUIPMENT MEN . . . in the News

J. R. Dilworth Elected To Rockwell Board

J. Richardson Dilworth, of Princeton, N. J., has been elected to the board of directors of Rockwell Manufacturing Co. This announcement was made by W. F. Rockwell, Jr., president of the company.

Dilworth is a member of the Connecticut bar. Since 1946 he has been associated with the firm of Kuhn, Loeb & Co. in New York City. He is also a director of The Concrete Brick Co. and The Carbon Limestone Co., both of Lowellville, Ohio.

Cooper-Bessemer Elects C. G. Cooper as Vice President

C. G. COOPER

Charles G. Cooper, manager of Cooper-Bessemer's Washington office, was elected a vice president at the recent board of directors' meeting. "Cooper's election to vice presidency," explained B. B. Williams, board chairman, "is partially in recognition of his important role of directing Cooper-Bessemer's efforts in this nation's defense program from the company's Washington office."

Elected a director of the company in 1945, Cooper has been responsible for the sales and servicing of government diesel and gas-engine contracts, as well as all direct relations between Cooper-Bessemer and agencies of the U. S. Government.

Son of the late C. G. Cooper, former Cooper-Bessemer president, and grandson of Elias Cooper, one of the company's founders, Cooper is a graduate of Sheffield Scientific School of Yale University. He served as a field and service engineer with Chapman Stein Co., former Cooper-Bessemer subsidiary, until 1931 when he joined Cooper-Bessemer's New York office as sales engineer. In 1933, Cooper established the Washington office that he has managed ever since.

Quaker Rubber Announces $1,500,000 Expansion

A $1,500,000 expansion of plant and manufacturing facilities for Quaker Rubber Corp., Philadelphia, a division of H. K. Porter Co., Inc., has been announced by T. M. Evans, president.

The expansion plan, which will be activated immediately, will increase the finished rubber products capacity of the plant by 30 per cent. Centered around a new compounding and mixing building, the expansion program includes a new administration building, a new $300,000 72-in., double-deck, conveyor belt press. Approximately 70 per cent of the expenditure is earmarked for new equipment with the remainder going into new buildings.

Coleman is Westinghouse Industry Engineering Head

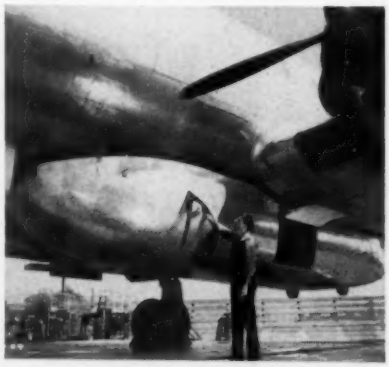
J. K. Hodnette, vice president in charge of industrial products for Westinghouse Electric Corp., has announced the appointment of H. C. Coleman as manager of the company's industry engineering departments, with headquarters at the East Pittsburgh Divisions. Coleman succeeds F. R. Benedict, who was recently assigned new duties with the company's Atomic Power Division.

Chicago & Southern to Use Speedpak on Caracas Flight

Air-cargo space availability for machinery parts, drilling equipment, and other well supplies bound for Venezuela has been stepped up by the addition of Speedpak units by Chicago & Southern Air Lines.

A Speedpak is a quickly removable container which is attached to the underside of the fuselage of the air line's Constellations. It incorporates an electrically driven winch permitting it to be raised into position or lowered to the ground in approximately 1 minute.

According to R. L. Webb, district traffic manager in Tulsa for Chicago & Southern, the Speedpak is used on the airline's international flights between New Orleans and Caracas.



The Speedpak is capable of carrying a load of 7,631 lb.

Oxford Joins Oil Base In Ventura Coastal Area

CHARLES OXFORD

Thad Randolph, vice president in charge of sales, Oil Base, Inc., has announced the appointment of Charles Oxford of the Ventura coastal area, for sales and service of Black Magic oil-base drilling fluid, White Magic oil-emulsion mud, chemicals, and weight materials manufactured by Oil Base, Inc., of Compton, Calif., and Houston.

Oxford served with Tide Water Associated Oil Co. in California for 2 years. After his discharge from the Armed Forces, he was with Baroid for 7 years in California. He is an alumnus of University of California.

Lowe Made President of A. P. Green Fire Brick

W. S. LOWE

William S. Lowe, executive vice president of A. P. Green Fire Brick Co., Mexico, Mo., since August 1949, has been elected president of that company. Lowe succeeds Robert S. Green, son of the founder, who recently resigned. Green will continue as a member of the board of directors.

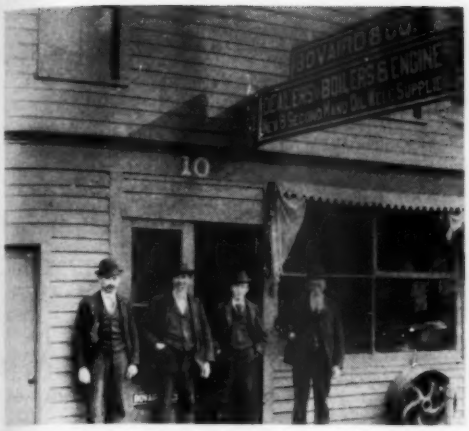
The company was founded in 1910 by A. P. Green, who continues as chairman of the board.

Today the company owns outright, is interested in, or connected with fire-brick plants in Woodridge, N. J.; Toronto, Mexico City, Buenos Aires, London, and Vereeniging, Union of South Africa. Its other United States plant is the Valentine Fire Brick Co. of Woodridge, N. J.

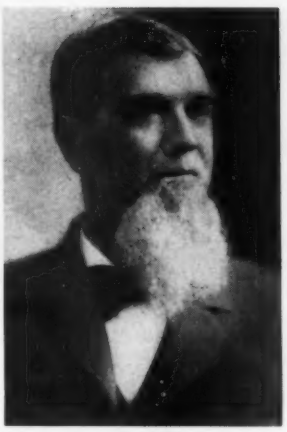
Weston Promotes Morrison

Earl R. Mellen, president of Weston Electrical Instrument Corp., Newark, N. J., has announced the appointment of Arthur L. Morrison as purchasing agent to succeed George T. Deaney, who has been made war-activities coordinator.

Morrison joined the Weston organization in 1934 as assistant purchasing agent.



The first Bovaird Supply Store established in Bradford, Pa., in 1878.



DAVID BOVAIRD, Founder.

DAVIS D. BOVAIRD, President.

Bovaird Supply Co. Celebrates Its 80th Anniversary

THE year 1951 marks the eightieth anniversary of the founding of Bovaird Supply Co. and the pioneering of a great service institution in the oil industry. In 1871, only 12 years after Colonel Drake completed his first oil well, David Bovaird, an ambitious young man and founder of the company, was furnishing supplies and materials to oil men at a small store in Shamburg, Pa.

As the oil industry grew and expanded, Bovaird grew in experience, facilities, and service. When the first important oil field was developed at Bradford, Pa., in the late '70's, David Bovaird moved his business there.

Shortly after the turn of the century, when oil was discovered near Independence, Kans., young David Bovaird became one of the pioneers of the oil-field supply business in the great Mid-Continent area by establishing a manufacturing plant at Independence.

Serving the growing oil industry was not a "one man" business, so in 1896, William and Walter Bovaird joined their father, followed soon after by their younger brother, Joe. As the adventurous spirit of oil men discovered oil in famous Glenn pool in Creek County, Indian Territory, the Bovairds established a store and shop at Sapulpa in 1907, which is still serving the industry in nearby fields.

In 1911, death claimed the founder, David Bovaird, but three of the four sons carried on, and in 1915 they divided the business. William and Walter took over the western activities while their younger brother, Joe, retained the eastern operations.

In 1919, Bovaird moved into Cisco, Tex., to serve the new Ranger field; and in 1920, Bovaird's store at Slick, Okla., was serving another new field. Later, general offices were established in Tulsa, and offices and stores have been established in Kansas, Oklahoma, Texas, and Illinois.

Thus, with 80 years of progress, four generations of the Bovaird family have served the industry, both as participants and spectators in a thrilling chapter in the history of America.

Merve, Frank, and Davis Bovaird, following in the footsteps of their grandfather, David, and their father, William, have been identified with the oil industry and served its needs during the past generation. Following the death of W. M. (Merve) Bovaird in 1948, Davis D. Bovaird succeeded him to the presidency. Frank D. Bovaird continues as vice president; and recently Davis' son, William J., joined the company and is now serving as store representative in the West Texas area.

The Bovaird organization includes men in important key positions who have been associated with the firm for a generation or more. R. M. McMahan, purchasing agent, joined the firm 40 years ago, in 1911. Other "old timers" include Steve J. Raphel, manager of tubular goods; T. C. McCuistion, chief clerk; and R. E. Batchelor, general manager of stores.

Roscoe G. Ayers, vice president and sales manager, and a pioneer in the supply business, joined the Bovaird organization in 1948. Thomas H. Trower joined the firm January 1, 1951, as treasurer.

Today, there are 10 persons who have served the oil industry for 25 years or more as members of the Bovaird organization.

From its humble beginning with an

W. J. BOVAIRD

WALTER BOVAIRD

J. H. BOVAIRD

W. M. BOVAIRD

F. D. BOVAIRD

R. G. AYERS

R. E. BATCHELOR

W. (BILL) BOVAIRD

T. H. TROWER

infant industry in Pennsylvania, Bovaird Supply Co. today represents many of the nation's outstanding manufacturers of oil-field equipment and supplies, carries complete stocks, and maintains 22 stores and offices. Bovaird stores and offices are located at: Clay City, Grayville, and Salem, Ill.; Chase, Great Bend, McPherson, Pratt, Russell, and Wichita, Kans.; Duncan, Oklahoma City, Pauls Valley, Ringwood, Sapulpa, Seminole, and Tulsa, Okla.; Borger, Dallas, Midland, Odessa, Pampa, and Snyder, Tex.

Cable & Stine Makes Ray Staples a Partner

RAY STAPLES

Ray Staples has become a partner in the firm of Cable & Stine, petroleum engineers, Wichita Falls, Tex., according to a recent announcement.

Staples, who has been associated with the firm since 1944, was formerly employed as a petroleum engineer in charge of production of a water-flood project in southeastern Kansas, and later as a petroleum engineer with the U. S. Department of the Interior in Oklahoma. At Cable & Stine he is in charge of the core-analysis lab, salt-water disposal, and water-flood surveys and installations.

Cable & Stine has been engaged in the Mid-Continent fields for a number of years in engineering studies, installations, and operations of gas repressuring, pressure maintenance, water flooding, and salt-water-disposal projects.

Hurley Is Made Asst. Sales Manager of W-K-M

H. L. HURLEY

The W-K-M Co., of Houston, manufacturers of pipeline, christmas-tree, and general-duty valves, has announced the appointment of Harvey L. Hurley as assistant sales manager. Hurley has been closely associated with the oil industry for many years, more recently with Rockwell Manufacturing Co., and had his headquarters at Houston.

He will give particular attention to W-K-M plans for the introduction of its products throughout all phases of the oil industry.

Stewart & Stevenson Opens New Houston Service Plant

This new home for Stewart & Stevenson Services at 1624 Fourth Avenue, Lubbock, Tex., was recently opened in the West Texas area. Stewart & Stevenson Services are distributors for General Motors diesel engines, Chrysler engines, Continental engines, and Gardner-Denver pumps.

S. T. Mackenzie Made Sales Manager

Appointment of S. T. Mackenzie, head of the Philadelphia office of The Babcock & Wilcox Co., to the newly created post of sales manager was recently announced by W. T. McCullough, Jr., vice president of the company.

Previously McCullough handled duties of sales manager as well as vice president. Mackenzie, who will headquarter in New York, graduated from Lehigh University in 1924, joined Babcock & Wilcox in 1934, and has been in charge of the Philadelphia office since 1946.

R. W. Buntin will become district sales manager of the Philadelphia office to replace Mackenzie.

Ekberg Named to Petroleum Chemicals Sales Post

J. Paul Ekberg, Jr., of St. Louis, has been appointed to fill the newly created post of assistant manager of petroleum-chemicals sales, it is announced by Robinson Ord, general sales manager of Monsanto Chemical Co.'s Organic Chemicals Division.

In his new assignment, Ekberg will assist J. W. Newcombe, manager of the department since 1944, in handling the sales of Monsanto's broad range of lube-oil additives. Ekberg has been with Monsanto since 1940 when he was graduated from Yale University with a B.E. degree in chemical engineering. He was employed as an analytical chemist and production supervisor prior to entering petroleum chemical sales in 1946.

New Quarters for Otis Pressure Control, Inc., in Houston

Otis Pressure Control's Houston division has moved into recently completed offices and warehouse at 2402 Broad Street at Gulf Freeway. Offices, sales rooms, and special quarters for Otis tubing caliper survey analyses are in the building on the left; equipment and tools are serviced and shipped in the warehouse building at right. In inset, are Jack Rogers, assistant superintendent; D. E. Daffin, superintendent; Guy Gant, office manager; Mrs. Marian Pearson, secretary; Kenneth W. Robbins, caliper engineer, and Turner G. Garwood, Gulf Coast sales manager. Other Otis offices in the South Texas-Louisiana area are in Corpus Christi, Victoria, Falfurrias, New Iberia, and Houma.

Your MARKET PLACE FOR THE OIL AND GAS INDUSTRY...

CLASSIFIED ADVERTISING

UNDISPLAYED CLASSIFIED 12c a word one issue. 10% Discount three or more issues. $3.00 minimum charge. Blind Box in our care counts nine words. Payable in Advance.

DISPLAY CLASSIFIED
$12.00 a column inch one issue . . .
10% Discount three or more issues.

EQUIPMENT FOR SALE

USED ROTARY AND CABLE TOOL DRILLING TOOLS, WIRE LINES, E. A. KELLY, BOX 861, OKLAHOMA CITY. PHONE 5-8407.

FOR SALE: Westcott, Foxboro and Emco Gas Meters, Geo. R. Milner. Box 124, Okmulgee, Oklahoma.

WELL equipment. New and used spudders, rotaries, core drills, all sizes and types. Cable tools, drill pipe, bits, pipe. Fishing tools rented. Everything for well service. Pressey & Son. Pueblo, Colo.

COMPLETE Mast Pole Rig. Waukesha Motors. Good for 2500 feet. Wm. Andree, Phone 2-9749, Abilene, Texas.

FOR SALE—One truck mounted Sullivan 200 Rotary Drilling Rig complete including 2,000 feet of new 2 and 7/8" drill pipe, drill collars, light plants, water pumps, dog house; three other trucks, one new 5 x 10 mud pump and motor operating as a separate unit. Box D-828, The Oil and Gas Journal, Tulsa, Oklahoma.

AVAILABLE for sale and immediate shipment line pipe, seamless and lapweld casing, tanks. Call or write Edco Pipe & Supply Company, Box 565, Drumright, Oklahoma.

USED WELDED TANKS
150-210 Barrels, located near Chelsea, Oklahoma. Sam Manes, 911 East Independence. Phone 7-9896, Tulsa, Oklahoma.

Several Army Surplus 4½" x 6" Gaso Duplex 1860 Pumps — two piece skid mounted with Chrysler 8 cylinder engines. Will sell pumps only or complete units about half price.

H. H. COFFIELD
ATTN.: W. H. Orr
Phones: 132—Rockdale, Texas
A-86064—Houston, Texas

NEW VALVES & FITTINGS
30"—18"—14" & smaller Merco Plugs
14" to 2" Gate, Globe and Check Valves
30" to 2" Weld Fittings and Flanges
12" and 8" Daniel Orifice Fittings
In Stock for Immediate Delivery
ATTRACTIVELY PRICED—
ASK FOR LIST
MYERS-BAGWELL COMPANY
115 W. Third, Tulsa, 5-7264

A.P.I. CASING FOR TRADE ONLY
Now Located in California

Approx. 15,000 ft. of 7" O.D. Engineered Casing, mostly N-80, weights 23# to 30#.

Want similar pipe, Mid-Continent area.

Approx. 12,000 ft. 5½" O.D. N-80 Engineered Casing, weights 20# and 23#.

Want 5½" O.D. J-55, 14# or 15.5#, Mid-Continent area.

R. H. TECKLENBORG CO.
811 West 7th St. Ph. TRinity 2091
Los Angeles 17, Calif.

EQUIPMENT FOR SALE

FOR CABLE TOOLS
DEGEN PIPE AND SUPPLY CO
Box 107, Red Fork Station, Tulsa, Oklahoma

FOR SALE: 8,000'—2¼ OD used seamless steel tubing. 40' lengths. Excellent condition. Price per foot 25 cents F.O.B. Joplin, Missouri. Joplin Machinery & Electric Company, Joplin, Missouri.

NEW oil well casing for sale, various sizes. Also interested supplying casing for (working) interest. Box D-851, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE: Two Sullivan 37 special rigs mounted on International trucks, Waukesha and Buda drill motors, 1800 ft. Sullivan 2⅜ tool joint pipe 20 ft., two 900 gallon water tanks mounted on late model Chevrolet trucks, two 4 wheel rod trailers, two 260 gallon gasoline trailers. Equipment in top shape, used less than two years. Nothing additional needed to start drilling. Good supply extra parts. TRANS-TEX EXPLORATION CO. Box 558, Abilene, Texas. Phones 8130—2-7565.

BOILERS—ASME—PERFECT
4—Hedges-Walsh-Widener (Combustion Engineering) 3604 HS, 350# WP Cross Drum Sectional Header Used by government. In perfect condition. SAVE OVER 60%—MOVE INTACT. **Full line of Late Model Quality Used Boilers.**

UNITED STEEL PRODUCTS CO.
Box 4111, Phone 37-8686, Memphis, Tenn.

EQUIPMENT FOR SALE

FOR SALE: 1946 Cardwell QST Servicing unit with 48' 7"x8" Cardwell Mast. Suitable for 3500' 2½" tubing. Complete set tubing and rod tools. Mounted on 3-Ton EH Mack truck. Frank Jones, McPherson, Kansas.

NEW TOWERS—1 7'-6" ID x 85'-7", 21 steel trays. One propane deasphalting plant, consisting of 3-3' ID x 50', 500# treating towers; 2-3' ID x 38' stripping towers; 1-3' x 20' scrubbing tower; 1-2' x 14' suction trap; 1-2' x 14' Interstage cooler. Kinslow Power & Equipment, Inc., 817 South Boulder, Tulsa, Oklahoma.

FOR SALE

No. 5L GISHOLT TURRET LATHE, 12½" hole in spindle, new 1945, full length leadscrew, quick change gearbox, chucks, bar feed, 50HP AC motor. Like new.

O'Connell Machinery Co.
1626 Niagara St. Buffalo 7, N. Y.

Liquidation Special!
TOWERS AND VESSELS

2—3'6" x 10' x 7/16" vertical
1—3'6" x 16' x 3/8" vertical
1—20" x 5' x 3/8" vertical
2—3' x 6' x 3/8" vertical on 6" skirt
1—12' x 66' x 3/4" w/29 pressed steel trays and reboiler
1—3' x 7' x 1/4" horizontal
1—6' x 38' x 7/8" vertical
1—3' x 5' x 7/16" vertical
1—3'6" x 16' x 7/16" horizontal
4—3' x 12' x 3/8" vertical
1—3'6" x 30' x 1" w/6 sidepans—vertical
1—3'6" x 5' x 1/4" vertical
1—3'6" x 15' x 7/16" horizontal
1—15½" x 5' x ½" vertical
1—4' x 26' x 7/16" vertical
2—2'6" x 15' x 3/8" vertical
1—4' x 16' x ½" horizontal
6—2'6" x 20'2" x 3/8" vertical

WRITE—WIRE—PHONE

DULIEN STEEL PRODUCTS, INC.
of Washington
P. O. BOX 667
COTTON VALLEY, LA.
PHONE: COTTON VALLEY 26

EQUIPMENT FOR SALE

COUPLINGS—6" Merchant, straight tapped, 4⅛" long, 8 V thd. New, perfect—300 pcs. Julius M. Fogelman, 1649 Perkiomen Ave., Reading, Penna.

6000 Feet 3" Upset Seamless Range two Tubing, Excellent Condition. Jay Kornfeld, 1121 Union Nat'l. Bank Bldg., Wichita, Kansas. Phone 4-2121.

FOR SALE: Cooper skid unit with Allis-Chalmers E 60 engine. Mounted on 6X6 G.M.C. truck. With or without 8 in. X 10 in. X 65 ft. single pole mast. R. G. Scott, Seminole, Okla. Phone 877.

FOR SALE: At Odessa, Texas, 1 Used 125 HP, 300# Working Pressure Donovan ASME Code Boiler equipped with Elesco Superheater and Fittings, purchased new 1936, $2500. Cities Service Oil Co., Patridge, Bartlesville, Oklahoma.

1—4'-0" ID x 40'-6" x 1¼" thick Tower. No trays. Tri-State Supply Company, Box 610, Mt. Pleasant, Texas.

FOR SALE: One 225 HP Waukesha Motor Model N K U—Skid mounted with Clutch and pulley, used less than thirty days. Suntex Drilling Company, 216 Braniff Building, Oklahoma City, Oklahoma.

2 NEW SHOT HOLE DRILL RIGS

SPECIAL PRICE $5000

Complete with mast, double acting hydraulic rams to provide 10' continuous non-chucking stroke, hydraulic operated winch, hydraulic powered rotary table, swivel and 4x5 mud pump, all mounted on 1½ ton Ford truck. Capacity 400' of 3" hole, or equivalent. Also available are 49 sections of Drill Pipe, 2⅜" x 10'.

International Derrick & Equipment Co.

Department No. 204, Atlantic Building
DALLAS, TEXAS

EQUIPMENT FOR SALE

STAR 45-C Heavy duty spudder, 100-horse M. & M. new engine, 3000 ft. drilling line, 3000 feet sand line, 60 ft. x 12" new endless belt. Model C Fort Worth spudder, 27-horse engine on rubber, with tools. 260 acre lease in Nowata Co. with 2 wells, 10 bbl. settled production. G. C. Lizar, Box 413, Phone 82-J, Garber, Oklahoma.

DRAW WORKS or clean-out works, Wilson Mogul auto cat head, PA-100, 50 ton hydraulic mast, all on 10 wheel truck. Box D-840, The Oil and Gas Journal, Tulsa, Oklahoma.

A BARGAIN
7500 FOOT ELECTRIC DRILLING RIG

H-46 Emsco Draw Works with 40" Hydromatic Brake & Tank, 3—300 H.P. Sterling Engines, gas or butane, 1—150 KW Generator, 1—175 KW Generator, 1—150 H.P. Motor, 1—200 H.P. Motor, 7¼" x 18" Power Pump, Regan Crown Block, Gumbo Buster Traveling Block, B-6 Emsco Swivel, 26½" Emsco Oil Bath Table, Shale Shaker, 13⅜" Type MP Cameron Blow Out Preventer, 2—Steel Tool Houses, complete with all necessary accessories less drill pipe & derrick—inventory on request—Price $27,500 F.O.B. location. H. A. McCarthy, 310 Thompson Bldg. Phone 5-3296, Tulsa, Okla.

FOR RENT

FOR RENT: Approximately 5,500 square feet second story office space. Will arrange to suit tenant. Write Sweetwater Reporter, Sweetwater, Texas.

WANTED

PRODUCTION WANTED

Will pay cash for settled production in any amount between 100 and 3,000 barrels daily or partially developed acreage with substantial proven reserves in Texas, Oklahoma, Kansas, New Mexico, Colorado or Wyoming. Submittals must stand thorough engineering investigation and must be priced to show reasonable payout and profit to purchaser. Prospective purchaser is independent who will deal directly with owners or through broker.

Box D-832

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

EQUIPMENT WANTED

WANTED—Cable tool rig 36-L or equivalent with all tools and preferably casing used for drilling. Mr. L. Woodrow—Box 400, Danville, Kentucky. Phone 2121.

WANT TO BUY: Used Bucyrus-Erie 28-L; 2⅞" OD DRILL PIPE; 7¼ X 12 or 7¼ X 14 .ate model EMSCO MUD PUMP. R. F. Hare, 2019 W. T. Waggoner Bldg., Fort Worth, Texas.

PULLING UNIT

Wanted—Truck mounted unit complete with mast. Unit must be capable of handling 5000' of 2½" tubing and have drum that will spool 7,500' of ⅞ line.

Box D-822, The Oil and Gas Journal,
Tulsa, Oklahoma

Wanted to Purchase

Used Boiler Tubes

Any size from 2" OD through 5½" OD in straight or mixed carload quantities.

WRITE—WIRE—PHONE

Sonken-Galamba Corp.

2nd and Riverview (X-672)
Kansas City, Kansas
THatcher 9243

HELP WANTED

FOREIGN and Domestic Oil Employment Directory covering the oil industry, showing where to apply for jobs. Price $5.00. Oil Industry Mailing List, Box 2603, Tulsa, Okla.

THE NEWLY organized Venezuelan Atlantic Transmission Corporation requires a Superintendent of Transmission to be responsible for physical operation of line, compressor plants along the line, transmission of gas and the forecasting and dispatching of the operation of a natural gas line. Must have minimum of 5 years experience with large natural gas company. Graduate engineer preferred. Starting salary in the range of $13,000 per year plus liberal monthly living allowances. Give full details in reply to The Atlantic Refining Company, P. O. Box 2819, Dallas, Texas.

SHIFT SUPERVISOR: Responsible for supervision of Catalytic Cracking and Poly Plant operations, plus general supervision over process workers during shift. Must be experienced and thoroughly familiar with all phases of refinery operation. Location—Artesia, New Mexico. Write New Mexico Asphalt & Refining Company, Artesia, New Mexico, giving full particulars of qualifications, experience and references.

GEOPHYSICIST WANTED

Position open for experienced seismologist for supervisory work with major independent, Midcontinent area. Permanently located in Tulsa. In replying, give personal history, education qualifications, and details of professional experience.

Box D-823, The Oil and Gas Journal,
Tulsa, Oklahoma

HELP WANTED
CHIEF GEOLOGIST

Good opportunity for geologist with sufficient education, training and experience to act as Chief Geologist for strong independent oil company. Location, Houston. Write giving complete details of personal and employment history. Replies confidential. Address—

Box D-824, The Oil and Gas Journal,
Tulsa, Oklahoma

EQUIPMENT FOR SALE

FOR SALE

100,000' 2" O.D. x .145" Wall 2.7# Reconditioned Seamless Tubing, 14' Lengths and Over.

25,000' 2⅜" O.D. 3.75# & 4# Good Used Lapweld T&C Range 1 Line Pipe.

30,000' 2⅜" O.D. 4# Good Used Lapweld Range 1 Tubing with New 11½ V-Threads and Collars.

10,000' 3" O.D. x .300/.375" Wall 9.7# Seamless Tubing, 23'-26' Lengths, Plain Ends.

3,200' 5" O.D. x .438/.563" Wall 24.03# Seamless Tubing, 17'-25' Lengths.

5,000' 5½" O.D. 10# Reconditioned Seamless Casing, New 11½ V-Threads and New 5½" Collars (Recommended for Shallow Wells).

7,500' 6⅝" O.D. 13# Good Used Lapweld Range 1 T&C Casing.

15,000' 6⅝" O.D. 18.97# Excellent Grade Used Lapweld, Cleaned, Beveled Ends, 20' RML.

6,000' 7" O.D. 20# Good Used Lapweld Range 1 T&C Casing, 10 V-Threads.

5,000' 8⅝" O.D. 25# Good Reconditioned Casing, T&C, 8 V-Threads, Range 1.

1,200' 10¾" O.D. 35.75# Good Used Lapweld T&C Casing, Range 1, 8 Thread.

THIS MATERIAL IS AVAILABLE FOR IMMEDIATE DELIVERY, SUBJECT TO PRIOR SALE

OTHER SIZES OF LINE PIPE, SEAMLESS TUBING IN SUITABLE SUBSTITUTE SIZES FOR STANDARD PIPE (EXCELLENT FOR GAS, GATHERING AND FLOW LINES), CASING AND TUBING AVAILABLE FOR IMMEDIATE DELIVERY.

FOR FURTHER INFORMATION, WIRE OR PHONE AT ONCE

A. J. STRUBEL, Broker

SIDney 1731 (Day Phone) HUDson 8152 (Night Phone) . . . 4946 Murdoch, St. Louis, Mo.

HELP WANTED

ELECTRICAL ENGINEER: New large oil pipeline company requires electrical engineer to handle design, construction and devise maintenance procedures, all classes equipment to 5-KV switch gear. Some familiarity with sub-stations to 110-KV, 5000 KVA desirable but not required. No communications or electronics involved. Include full professional and personal details and minimum salary, first letter. Job is permanent. Box D-761, The Oil and Gas Journal, Tulsa, Oklahoma.

THE NEWLY organized Venezuelan Atlantic Transmission Corporation requires an experienced Combustion Engineer to promote the sale of natural gas to Venezuelan industries. Must be able to demonstrate advantages of natural gas consumption and advise customers on plant conversion. Prefer candidate with working knowledge of Spanish. Starting salary range approximately $8,500 per year plus liberal living allowances. Give full details in reply to The Atlantic Refining Company, P. O. Box 2819, Dallas, Texas.

EXPERIENCED GEOLOGIST, qualified for division Geologist Rocky Mountain area, with minimum eight years' experience. Wide experience desirable; four years' experience in Rocky Mountains required. Location Denver. Write, giving full details. Replies confidential. Box D-830, The Oil and Gas Journal, Tulsa, Oklahoma.

ENGINEERS, EXECUTIVES, TECHNICAL MEN, SALARIED POSITIONS—$3600 TO $30,000. THIS CONFIDENTIAL SERVICE FOR OUTSTANDING MEN WHO DESIRE A CHANGE OF CONNECTION, WILL DEVELOP AND CONDUCT PRELIMINARY NEGOTIATIONS WITHOUT RISK TO PRESENT POSITION. SEND NAME AND ADDRESS FOR DETAILS. TOMSETT ASSOCIATES, 1204 BERGER BLDG., PITTSBURGH 19, PA.

ECONOMIST preferably with experience in oil refining for large company offices on East Coast. Preferred age 30-40. Please state full qualifications and minimum acceptable salary. Box D-SAL, The Oil and Gas Journal, 415 Lexington Ave., N. Y.

WANTED: By reliable company more than 30 years in the business. Experienced oilfield machinery and engine salesman in Mid-Continent area. Write qualifications and experience. Box D-833, The Oil and Gas Journal, Tulsa, Oklahoma.

SALES ENGINEERS
OPERATIONS SUPERVISORS
PERFORATOR OPERATORS

Only Experienced Men Need Apply

WRITE ONLY

WELEX JET SERVICES, INC.
3909 Hemphill Street, Fort Worth 9, Tex.

WELL-KNOWN GEOPHYSICAL COMPANY HAS OPENING FOR AN EXPERIENCED SEISMIC PARTY CHIEF AND A COMPUTER. EXCELLENT OPPORTUNITY WITH COMPENSATION BASED ON COMPETENCE OF APPLICANTS.

Box D-831

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

SITUATIONS WANTED

GRADUATE GEOLOGIST
desires position with Los Angeles headquarters. Atlantic 4-2420, Los Angeles.

ENGINEER, 1 year experience petroleum engineering Lab. 2 Years drilling operations. Desires Domestic or Overseas position. Box D-803. The Oil and Gas Journal, Tulsa, Okla.

AVAILABLE—Competent Safety Director experienced in oil and gas production, heavy industry and the accident prevention field in general—Start $7500. Box D-847, The Oil and Gas Journal, Tulsa, Oklahoma.

PETROLEUM ENGINEER: 3 years' general experience, working knowledge completing and producing wells. Good References. Box D-843, The Oil and Gas Journal, Tulsa, Oklahoma.

SITUATIONS WANTED

ATTENTION: Well established oil well drilling contractor desires to manage and supervise: Individuals', groups', small or medium-sized oil companies' drilling, production and operating problems in Central and Western Texas, and New Mexico Personal interview by appointment is desired. Makin Drilling Company, Box No. 131, Ph. No. 131, Hobbs, New Mexico.

DRILLING Contractor operating in West Texas and New Mexico desires to contact small or medium-sized independent oil company who needs an operating manager. Personal interview desired. Twenty years experience in all phases of the oil industry. Address replies to Box D-644, The Oil and Gas Journal, Tulsa, Oklahoma.

PRODUCTION or drilling superintendent with 25 years experience with independent and Major companies desires position either domestic or foreign. 633 No. Jefferson, El Dorado, Arkansas.

SENIOR PETROLEUM GEOLOGIST, LANDMAN, or DEVELOPMENT PROJECT MANAGER. Immediately available for position with small oil company, royalty company, competent oil operator or drilling contractor. 26 years of education, training, and successful professional experience thoroughly qualifies me for any of the following: 1. Chief Petroleum Geologist. 2. Subsurface Geologist, Stratigrapher, Sedimentationist, or Special Geological Problems, 3. Magnetometer or Gravity Geophysicist, and Seismograph Interpreter, 4. Chief Landman for leases, royalties, titles, rentals, easements, maps, etc., 5. Development Project Manager for any wildcat or production development program, 6. Statistician, Investigator, Cost Information, Public Relations, Labor Relations, 7. Salesman of oilfield machinery, rigs, pipe, supplies, equipment, services, etc., 8. Latin American Representative for any kind of company in the oil business. H. A. Fonville, Box 21, Holland, Texas.

REFINERY Manager, twelve years experience in all phases of refinery operations, technical background. Prefer Kansas, Oklahoma, or Texas location. Box D-836, The Oil and Gas Journal, Tulsa, Oklahoma.

INDEPENDENT Oil Operator with geological degree and several years geological experience wishes to become associated with individual or group investing or desiring to invest in the oil business, on a salary-interest basis. Familiar with all phases of operation and capable of directing the program desired. Such association should be mutually beneficial. Conference can be arranged after preliminary negotiations. Write Box D-834, The Oil and Gas Journal, Tulsa, Oklahoma.

LANDMAN, twelve years experience with background of scouting, production accounting and purchasing desires permanent connection. References furnished. Available February 15th, 1951. Write Box D-849, The Oil and Gas Journal, Tulsa, Oklahoma.

LANDMAN and TITLE CURATOR, age 28, five years' experience contract land work. Desire position with Major or Large Independent. Capable of all phases Land Department. Box D-844, The Oil and Gas Journal, Tulsa, Oklahoma.

PETROLEUM ENGINEER: Married, 30, graduate Texas A. & M., eight years diversified production, drilling, and surveying experience. Will consider any engineering position offering opportunity for advancement. Box D-839, The Oil and Gas Journal, Tulsa, Oklahoma.

GEOPHYSICIST: 18 years experience Training Geological Engineering Desires position as Geophysicist for Independent Oil Company or Seismograph Supervisor. Preferably Gulf Coast. Immediately available. Box D-852, The Oil and Gas Journal, Tulsa, Oklahoma.

GEOLOGIST desires position in Latin America. Three years' major company experience, fluent Spanish, excellent references. Box D-842, The Oil and Gas Journal, Tulsa, Oklahoma.

CHEMICAL ENGINEER: B. S., M. S. chem. minor Ch.E. Phi Lamba Upsilon. Ten years' diversified experience, process engineering and economic studies for butadiene and natural gasoline manufacture and grease chemistry Box D-845, The Oil and Gas Journal, Tulsa, Oklahoma.

ROYALTIES

SPOT CASH PAID FOR PRODUCING ROYALTY. SMALL TO LARGEST BLOCKS IN SETTLED OR OLD PRODUCTION ONLY. Oil Specialists since 1904. GERBER & CO., 120 WALL STREET, NEW YORK, N. Y.

DEEDED ROYALTIES
San Juan Basin & Permian Basin. Write Harry S. Wright, Wright Bldg., Farmington New Mexico.

MONTANA ROYALTIES
Millions of acres now leased by world's major companies, with huge drilling play in prospect. For booklet describing Montana geology and oil development, write Landowners Royalty Company, Box 1225 Great Falls, Montana

LEASE AND DRILLING BLOCKS

WANTED—Principal with $50,000 risk capital for drilling test on 5,000-acre block in No. Texas. Will turn leases. Area drilling shows prolific gas plus high gravity oil. P. O. Box 11121, Fort Worth, Texas.

FOR SALE: Oil and Gas Leases adjoining producing leases, also wildcat leases, Drilling propositions and small producing properties; all in shallow territory. W. P. Harley, Bowling Green, Ky.

ARE YOU interested Utah oil play? Opportunity to obtain individual leases or join Syndicate. Need associates to acquire several thousand acres southeast Utah. Good structure. Good deal. Confidential information. Box D-846, The Oil and Gas Journal, Tulsa, Oklahoma.

INDEPENDENT company seeking good prospects for immediate drilling. Bona fide deals with merit only. Box D-850, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE: Interest in large acreage on The Liedy Gas Structure, at Renovo, Penna. Box D-848, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED IMMEDIATELY: Producing or non-producing leases, royalties, lands, Texas, Oklahoma, Louisiana or elsewhere. Inquiries welcome from owners, brokers, bankers, lawyers, geologists, abstractors, estates. Give price, income, location, description. American Oil Co., P. O. Box 38-J, Houston, Texas.

WANT SPUDDER: Rotary & Driller. Also will farm out shallow oil properties; wells drilled, less than $500 each. Give Telephone. Box D-841, The Oil and Gas Journal, Tulsa, Oklahoma.

WISH to contact driller with own rig or parties financially able to have hole drilled and properly completed within 90 days on interest basis. Will exchange interest in well for casing and tubing. Royalty for new automobile and a light metal airplane. Two pay zones under 2400 feet. Land located in North Central Texas. Box 1512, Dallas.

TRADE: Casing and tubing for ground floor interest in proven or semi-proven production. Principals only, send full details to Box D-800, The Oil and Gas Journal, Tulsa, Okla.

LEASES ROYALTIES

Producing and Nonproducing
Bought and Sold—Any Area
Inquiries Invited

B. D. BUCKLEY
6635 Delmar Ave., St. Louis 5, Mo.

PATENT ATTORNEYS

PATENT Practice before U. S. Patent Office. Validity and Infringement Investigations and Opinions. Booklet and form "Evidence of Conception" forwarded upon request Lancaster, Allwine & Rommell, Registered Patent Attorneys. Suite 418 815-15th Street, N.W., Washington 5, D. C.

LEGAL BLANKS

BURKHART LEGAL BLANKS since 1908. Oil-Gas (all states), Business, Real Estate, Legal Forms, Leases, Revised With Government Regulations, Commercial Printing Catalog and Samples on request. Burkhart Printing & Stationery Company, 115 South Cincinnati, Tulsa 3, Oklahoma.

BUSINESS OPPORTUNITIES

INVESTMENT OPPORTUNITY

116,000 acres deeded land with oil and mineral possibilities, located on paved highway 55 miles from Albuquerque. Has thousands of acres of forage for livestock, several thousand acres suitable for mountain homesites, thousands of acres of thrifty Ponderosa Pine seedlings. Some 60 miles of mountain streams, rich with trout and game. Elevation 6,000 to 9,000 feet. Good climate, picturesque scenery. An outstanding value. Homesites alone may in time pay for entire property. Price $10.00 per acre. Smaller property, if clear, may be accepted as part payment. Write Ernest O. Buhler, Box 3530, Route 3, Albuquerque, N. M.

BUSINESS FOR SALE: Fox Paraffin Solvent Manufacturing Company. Patented formula. Sacrifice price. Terms acceptable. Owner deceased, reason for selling. Box D-835, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE AS A GOING CONCERN HIGHTOWER OIL & REFINING CORPORATION.

Brownwood, Texas.

Lease equipment, drilling equipment, sundry production equipment, gas distribution equipment, office building, office equipment, automobiles, trucks, leasehold interests, royalty interests, office site, City of Brownwood, right-of-way, shop equipped. For details as to assets inquiry should be addressed to Hightower Oil & Refining Corporation, Brownwood Texas. TERMS: cash.

FOR SALE

Here is your chance to buy an established business specializing in Industrial Instrument and Magneto repair. Will sell complete including stock, tools, fixtures, telephone, name and a good reputation.

A modern, air conditioned, 40 x 50 stone & tile building, located on a main oil field hi-way.

Work consists of Magneto's, Gas Regulators, Flow Valves, Chemical Injectors, Thermostats, Clocks, Pressure Gauges, Recorders, Orifice Meters, etc.

A good opportunity for someone who desires a going business with no risk involved.

Owner entering service!

ENGINEERING INSTRUMENT CO.
2604 Kermit Hi-way
Odessa, Texas

Schaeffer Is G-E Manager Switchgear Manufacturing

Emil R. Schaeffer has been appointed manager of manufacturing of General Electric Co.'s Switchgear Divisions at Philadelphia, according to an announcement by R. F. Tinnerholm, manager of the divisions.

Schaeffer was graduated from Drexel Institute, Philadelphia, in 1917. He joined General Electric in 1919 as a draftsman in the Philadelphia plant. He then became in succession a tool designer, assistant foreman of the tool room, and a manufacturing-layout supervisor.

In 1929 he was made supervisor of tool planning and wage rates. Ten years later he was named works superintendent, and in 1948 was appointed assistant to the manager of manufacturing, the position he held until his present appointment.

BOOKS

A.S.T.M. STANDARDS ON PETROLEUM PRODUCTS AND LUBRICANTS. Prepared by A.S.T.M. Committee D-2. Published by American Society for Testing Materials, 1916 Race Street, Philadelphia. 718 pp. $5.50.

This latest compilation brings together in compact form most of the A.S.T.M. standards, test methods, and specifications widely used in the petroleum field. (The tests for knock rating of engine fuels and certain sampling and volume-measuring standards are issued in special manuals and not included in this compilation).

A MANUAL OF PLASTICS AND RESINS. William Schack, editor. Published by Chemical Publishing Co., Inc., 26 Court Street, Brooklyn. 547 pp. $10.

This is a comprehensive but lucidly compact survey of the materials, processes, products, and equipment of the plastics industry. The book contains some 1,500 subjects, and all of them are arranged in alphabetical order for ready reference. In addition to full-length articles, the book includes hundreds of short articles on products and definitions of basic molding, fabricating, and chemical terms. The major fields of plastics applications, such as aircraft, automotive, electrical appliances, housewares, refrigerators and so on are all discussed in detail and each article tabulates not only the components for which plastics are used, but also the specific plastic used for each, and the properties which make it suitable for the purpose.

MODERN GLASS WORKING AND LABORATORY TECHNIQUE. By M. C. Nokes. Published by Chemical Publishing Co., Inc., 26 Court Street, Brooklyn. 157 pp. $3.75.

In this book instructions are given for the working of Pyrex and other hard glasses, the strength and efficiency of the apparatus produced being regarded as of more importance than that excellence of finish which is invariably attained by the professional. The third edition is enlarged, reset, and contains several new processes and diagrams.

THE CHEMISTRY OF THE NONBENZOID HYDROCARBONS. Second edition. By Benjamin T. Brooks. Published by Reinhold Publishing Corp., 330 West Forty-Second Street, New York. 615 pp. $12.

This new edition is a completely up-to-date survey of paraffins, olefins, and cyclic (other than aromatic) hydrocarbons. It gives complete and extensive discussions of the chemistry, properties, methods of synthesis, thermal cracking, oxydation reactions, polymerization, alkylation, and theoretical aspects of the many classes of hydrocarbons having a nonbenzoid structure. Advances made in the field in recent years are fully covered: the manufacture of synthetic organic chemicals, particularly from the simpler olefins; the organic chemical raw materials from petroleum and natural gas, and the refined products made from them; the study of antiknock values of individual hydrocarbons; and the recently developed processes of alkylation. The organic chemists whose chief work lies in other directions will find the book almost as valuable as will the specialist. Those engaged in producing synthetic rubber and other high-molecular-weight polymers from petroleum and hydrocarbon gases, petroleum chemists, chemical engineers, and research men will find the book most useful.

ECONOMICS OF FUEL GAS FROM COAL. By Battelle Memorial Institute, with John F. Foster and Richard L. Lund, editors, for Bituminous Coal Research, Inc. Published by McGraw-Hill Book Co., 330 West Forty-Second Street, New York. 289 pp. $5.

Here are the results of an intensive survey of the production of fuel gas from coal, covering both the technical factors concerned, together with comparative cost data on other fuels, such as natural gas. From it the reader concerned with the various aspects of this problem will get a thorough analysis of what has been done in this field and what may be done in the future, with particular attention to the economic feasibility of various processes. The study was directed especially at the question of manufacturing fuel gas from coal at a price that permits its substitution for other fuels.

REVIEWS OF PETROLEUM TECHNOLOGY. Volume 9, covering 1947. Edited by F. H. Garner, E. B. Evans, and George Sell. Published by the Institute of Petroleum, 26, Portland Place, London, W. 1, England. 340 pp. 27s 6d.

This volume follows the general line of its predecessors in the series and reviews the highlights of petroleum technology during the year 1947. Its 25 chapters, each by an authority on the subject discussed, cover the full range of petroleum from geology to legislation. In two instances—Refinery Plant and Engineering, and Plant Instrumentation—the articles cover progress in more than one year, 1940-47 in the former case and 1944-47 for the latter. Throughout the book there are references to over 2,000 technical articles and patent specifications published during the year.

SUBSURFACE WOODFORD BLACK SHALE, WEST TEXAS AND SOUTHEAST NEW MEXICO. By Samuel P. Ellison, Jr. Published by Bureau of Economic Geology, University of Texas, Austin. 35 cents.

This is the seventh in a series of Reports of Investigations. It consists of 20 pages with 6 text figures, and it describes and illustrates the geographic distribution, lithology, thickness, and paleontology of the subsurface Woodford in the Permian basin. Two heliotype plates made up of photographs of conodonts, brachipods, spores, and crustaceans found in the Woodford shale and in a shale below the Woodford add to the usefulness of the information. Several cross-sections of the Woodford accompany the publication.

SYNTHETIC ALKYD RESINS. Published by Patent Publications, Box 4094, Washington, D. C. 15 pp. $4.

The 137 main patent claims of synthetic alkyd resins included in this group list feature compositions with polyhydric alcohol—polycarboxylic acid reaction products, with monocarboxylic acid or anhydride thereof, and with monohydric alcohol.

OIL AND PETROLEUM YEARBOOK, 1950. Compiled by Walter E. Skinner. Published by Walter E. Skinner, 20, Copthall Avenue, London, E. C. 2, England. 280 pp. $4.

This volume gives up-to-date particulars about 790 oil companies in all branches of the industry operating in all parts of the world. Such particulars include directors and officers, date of incorporation, seat of operations, nature of business, description of propery, refining and other plant, crude-oil production, details of capital, dividends paid, and the financial position. It also lists 470 names and addresses and the names of companies with which they are associated, plus a buyers' guide listing manufacturers of oil-field and refinery equipment and accessories comprising 718 headings.

ECONOMIC ASPECTS OF ATOMIC POWER. By Sam H. Schurr and Jacob Marschak. Published by Princeton University Press, Princeton, N. J. 289 pp. $6.

This exploratory study, while not attempting to predict the economic effects of peacetime applications of atomic power definitively, is an approach to one of the most important and controversial subjects faced by economists today. The authors have concentrated on the potential uses of atomic power that seem the least remote—the generation of electricity from heat caused by nuclear reactors, and transportation of low-temperature heat over short distances, as for residential heating. They present an economic comparison, for various areas of the world, between electricity generated from atomic heat and that produced from coal, oil, or water power. The

study was initiated by the Committee on Social and Economic Aspects of Atomic Energy of the Social Science Research Council and executed by the Cowles Commission for Research in Economics.

CHEMICAL ENGINEERING COST ESTIMATION. By Robert S. Aries and Robert D. Newton. Published by Chemonomics, Inc., 400 Madison Avenue, New York. 109 pp. $5.

This new handbook allows quick estimating of equipment costs by graphical methods for all pieces of major equipment, piping, insulation, and other auxiliaries. Significant ratios are presented for the calculation of complete plant, investment, and operating costs, yielding a quick estimate of profit for management appraisal of a new project. The book is documented with numerous cost tables, including 67 graphs for rapid cost estimation.

CRUDE-OIL RESERVES OF PENNSYLVANIA. By William S. Lytle. Published by Topographic and Geologic Survey, Commonwealth of Pennsylvania Department of Internal Affairs, Harrisburg, Pa. 256 pp.

This report was compiled using information from publications of Pennsylvania Geological Surveys, the Pennsylvania Bureau of Statistics, the U. S. Bureau of Mines, and various technical journals. Data were also obtained from oil producers, from unpublished reports, and core analyses. A standard form has been adopted for reporting data on individual fields. In some cases fields in the same area and with similar characteristics are grouped and reported on a single form. Fields are grouped by counties, and the township, county, and quadrangle in which the field is located are reported.

SYMPOSIUM ON PLASTICITY AND CREEP OF METALS. Published by the American Society for Testing Materials, 1916 Race Street, Philadelphia. 72 pp. $1.50.

This symposium covers four outstanding phases of the subject—the plastic deformation and flow of metals—presented at the first Pacific area national meeting of A.S.T.M. in 1949. Papers and their authors are: "The Experimental Exploration of Plastic Flow in Sheet Metals," by L. R. Jackson and W. T. Lankford, Battelle Memorial Institute; "Forming Parameters and Criteria for Design and Production," by William Schroeder, Lockheed Aircraft Corp.; "The Use of Creep Data in Design," by H. C. Cross and L. R. Jackson, Battelle Memorial Institute; "Super Creep-Resistant Alloys," by J. W. Freeman, D. N. Frey, E. E. Reynolds, and A. E. White, University of Michigan.

CORRECTION

The price of the year book of the National Oil Scouts and Landsmen's Association for 1950, entitled "Oil and Gas Field Development in United States and Canada," is $8.50. The price was incorrectly quoted as $7.50 in these columns in the November 30 issue.

WORLD GEOGRAPHY OF PETROLEUM. Edited by Wallace E. Pratt and Dorothy Good. Published for the American Geographical Society by Princeton University Press, Princeton, N. J. 464 pp. $7.50.

For this comprehensive discussion of world oil the American Geographical Society has prepared 50 new maps, and a corps of petroleum geologists and administrators from the world's important oil-bearing regions have contributed detailed descriptions based largely on on-the-spot knowledge. The finding of oil-bearing areas is the subject of Part 1, "Petroleum in the Ground." Here the origins of petroleum are described, together with the reasons why it is found only in certain regions. Part 2 describes the organization of the petroleum industry, including drilling methods, oil-field installations, transport facilities, refining centers, and distribution systems. In Part 3 all the great productive regions are described, and the problems set for the oil industry by their geology, topography, climate, vegetation, accessibility, population, and cultural industrial development. In three chapters that may open up new vistas to many, the great potentially productive—but up to new barely scratched—regions of the world are described, in particular, the polar areas and the continental shelves. In Part 4 the central theme is the geography of petroleum use: where the world's oil goes, how the rates and kinds of production and consumption compare among the nations, and how these rates are changing. In addition to the 50 specially prepared maps, 11 diagrams and 98 photographs are included to supplement the text.

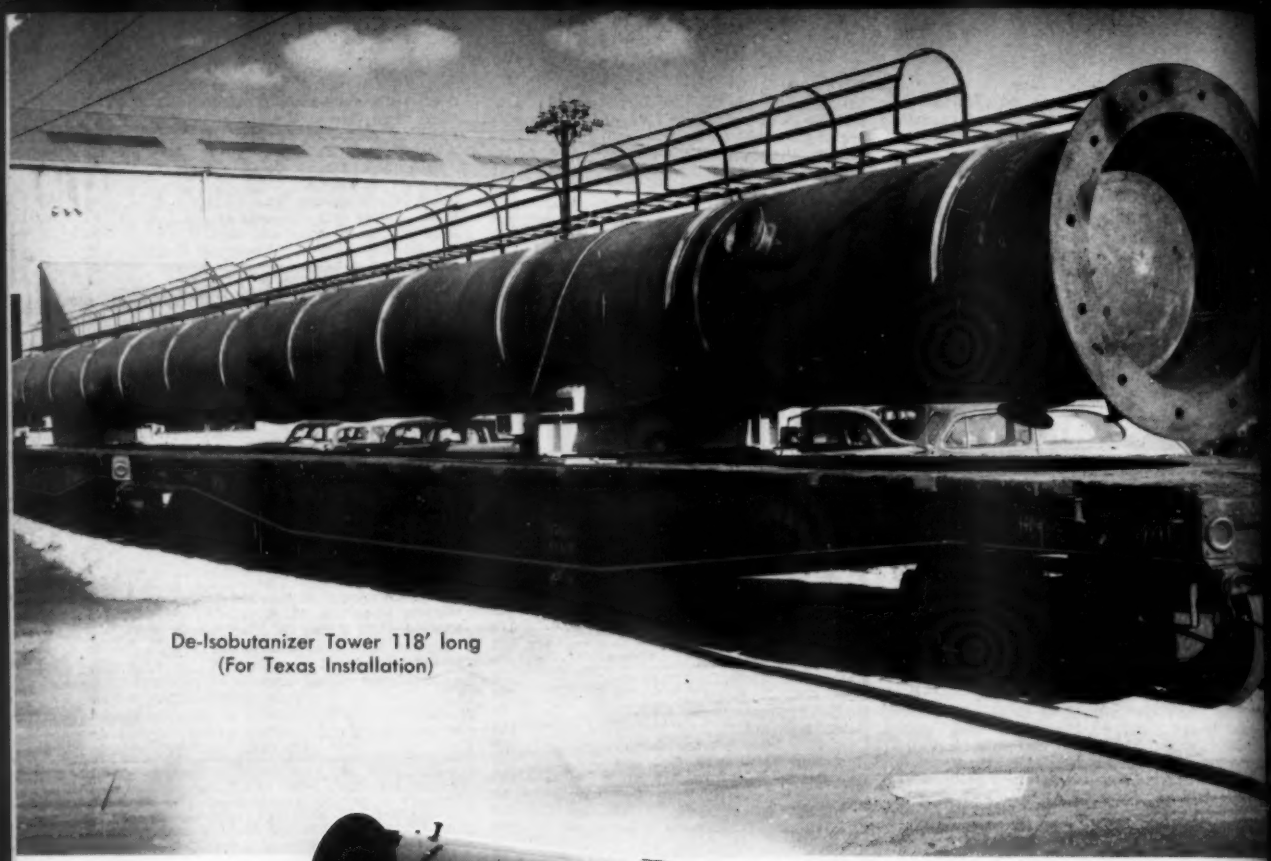
ADVERTISERS IN THIS ISSUE

Acragage Co. 96
Alten's Foundry & Machine Works 118
American Iron & Machine Works Co. 21
Anchor Petroleum Company 24
Anderson Co., V. D. 97
Anglo-Iranian Oil Company, Limited 81
Ansul Chemical Co. 18
Associated Oil Field Rentals, Inc. 109
Axelson Manufacturing Company 114
Baker Oil Tools, Inc 110, 119
Beech Aircraft Corp. 8
Bethlehem Steel Co. 1
Boyd Co., Clarence L. 98
Butler Manufacturing Co. 89
Cable & Stine 118
Cameron Iron Works, Inc. 106
Chapman Valve Mfg. Co., The 10
Chicago & Southern Air Lines 123
Chicago Pneumatic Tool Company 65
Classified Advertising 131, 132, 133, 134
Construction Machinery Companies 113
Crane Co. 7
Crutcher-Rolfs-Cummings 99
Dean Brothers Pumps, Inc. 98
Dempster Brothers, Inc. 105
Dowell Incorporated 90
Drilling & Service, Inc. 121
Eagle-Picher Sales Co. 115
Enardo Manufacturing Co. 117
Federated Metals Division, American Smelting & Refining Company 67
First National Bank & Trust Co. of Tulsa, The 101
General Electric Company 112
Geograph Company, Inc., The 114
Goodrich Company, B. F. 3
Goulds Pumps, Inc. 94
Grancell, I. H. 104
Grant Oil Tool Co. 66
Great Lakes Carbon Corp. 80
Grove Regulator Co. 86
Guiberson Corporation 6
Gunite Concrete & Construction Co. 96
H & M Pipe Beveling Machine Co. 98
Happy Company, The 76, 77
Harley Sales Co. 119
Hartzell Propeller Fan Co., Div. of Castle Hills Corp. 83
Hinderliter Tool Co., Div., H. K. Porter Company, Inc. 103
Hughes Tool Co Back Cover
Inferno Co., The 95, 96, 104, 117, 118
Jensen Brothers Mfg. Co. 114
Kenyon & Sons, Ltd., William 120
Kinzbach Tool Co., Inc. 67
Kobe, Incorporated 47
Lane-Wells Company Inside Front Cover
Larkin Packer Company, Inc. 2
Linde Air Products Company, The, Unit of Union Carbide and Carbon Corp. 62
Manzel Division of Frontier Industries, Inc. 20
McDonnell & Miller, Inc. 94
Miracle Decal Co. 104
Mission Mfg. Company 102
Moon Brothers, Ltd. 100
Moore Corporation, Lee C. 75
Murphy Diesel Company 9
National Airoil Burner Co., The 96
National Aluminate Corp. 43
National Tank Company 136
Nelson Electric Mfg. Co. 78
Norris Brothers, Inc. 67
Norris Manufacturer, Inc., W. C. 22
Oil and Gas Journal, The 84, 96, 117
Oil Capitol Supply Co. 95
Oil Well Supply Co. 4
Owens-Illinois Glass Co., Kaylo Division 5
Paris Distributor, Inc., Henry H. 97
Peerless Mfg. Co. 116
Pelican Well Tool & Supply Co. 123
Perma-Flex Decal Co. 123
Perrault Brothers 100
Pure Oil Company, The 45
Reed Roller Bit Company 61
Ross Heater & Mfg. Co., Inc. 13
Schlumberger Well Surveying Corp. 57
Shaffer Tool Works 111
Skinner Company, M. B. 99
Snap-On Tools Corporation 19
Standco Brake Lining Co. 104
Sun Engineering Company 94
Taylor Forge & Pipe Works 88
Taylor Instrument Companies 15
Thomas Flexible Coupling Co. 122
Timken Roller Bearing Company Front Cover
Union Carbide and Carbon Corporation, The Linde Air Products Company 62
United States Gasket Co. 17
United States Rubber Company 79
U. S. Steel Corp. Subsidiaries 4
United Supply & Manufacturing Co. 73
Wagner Electric Corporation 12
Warren Petroleum Corporation 26
Well Equipment Mfg. Corp. 7
Wheland Company, The 14
Willys-Overland Motor, Inc. 11
Wood's Sons Co., T. B. 104
Worthington Pump & Machinery Corp., Centrifugal Pump Division 16
Wright Chemical Corporation 68
Youngstown Sheet and Tube Company Inside Back Cover

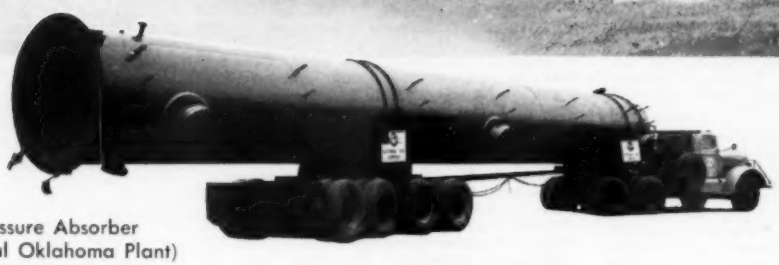
LEGAL

Department of the Interior, Wind River Indian Agency, Fort Washakie, Wyoming, January 2, 1951. Notice is hereby given that SEALED BIDS will be received until 2.00 p.m. February 2, 1951, and opened at that time in the Office of the Superintendent of the Wind River Indian Agency, Fort Washakie, Wyoming, for the leasing of the following units of tribal land located in Fremont County, Wyoming, for oil and gas mining purposes. UNIT NO. 1: All of Sec. 7, S½NW¼, W½SW¼, Sec. 8, N½, SE¼, Sec. 18, T. 1 S., R. 5 E. UNIT NO. 2: NW¼, E½SW¼ Sec. 9, T. 1 S., R. 5 E. UNIT NO. 3: W½ Sec. 21, W½ Sec. 28, T. 1 S., R. 5 E. The foregoing units of tribal land is being offered, and a lease will be drawn on the applicable Government form. The right is reserved to reject any and all bids. The successful bidder will be required to pay the cost of advertising. The lessee must pay as advance rental $1.25 per acre per annum. The lease will be sold to the highest bidder for a bonus offer upon an acreage basis in addition to the royalty of 12½%. The successful bidder must deposit with the Superintendent of the Wind River Indian Agency, on the date of the sale, a certified check or bank draft on a solvent bank in an amount equal to 20% of the bonus bid and of the first year's rental, as a guaranty of good faith. The check is to be made payable to the TREASURER OF THE UNITED STATES. The lease must be completed and filed with the Superintendent within 20 days from the date it is received by the lessee for execution and returned with the remainder of the bonus bid, the balance of the first year's rental, a filing fee of $10.00, and the cost of the printed forms. Failure in any of these conditions may subject the bid to cancellation without further notice and forfeiture of payments already made. The lease on the above tribal unit will be drawn pursuant to the Act of May 11, 1938 (52 Stat. 347) and the regulations, Part 186, Title 25, C.F.R. The lease issued pursuant to this notice will be made for a term of ten years from the date of approval by the Commissioner of Indian Affairs and as long thereafter as oil and/or gas is produced in paying quantities. The rate of royalty will be 12½% of the value of all oil, gas, and/or natural gasoline, unless the lessor, with the approval of the Commissioner of Indian Affairs, elects to take royalty in kind. The adequacy of the bonus offer will be determined by the U. S. Geological Survey. A suitable bond will be required, and such bond must be approved by the Commissioner of Indian Affairs. The responsibility of complying with any requirements of the Federal Documentary Stamp Statutes will be left with the successful lessee. All bids should be addressed to the "Superintendent, Wind River Indian Agency, Fort Washakie, Wyoming" in a plain envelope marked: BID FOR OIL AND GAS MINING LEASE, RIVERTON DOME, TO BE OPENED AT 2:00 P.M., FEBRUARY 2, 1950. For further information call or write Lands Department of the Wind River Agency.

TABLE OF CONTENTS ON PAGE 25



De-Isobutanizer Tower 118' long
(For Texas Installation)



High Pressure Absorber
(for a Central Oklahoma Plant)

National

HAS THE "KNOW-HOW" TO PRODUCE IT!

Today, with greatly increased modern facilities, National will serve the oil industry in a much broader way. National manufactures much larger vessels with higher working pressures for gasoline extraction, refining, gas processing, chemical processing, and many other lines. With 25 years' experience, National has conceived, designed and produced many "Firsts" for the oil industry. We are constantly finding better methods of serving you with the latest and best equipment. Our well-trained staff of engineers and skilled crews work constantly with this goal in mind. "It's a National" means the finest.

It's a National

NATIONAL TANK COMPANY

TULSA, OKLAHOMA